



Teaching Wound Care to Family Caregivers

An overview of methods to use to promote wound healing.

This article is part of a series, *Supporting Family Caregivers: No Longer Home Alone*, published in collaboration with the AARP Public Policy Institute. Results of focus groups, conducted as part of the AARP Public Policy Institute's No Longer Home Alone video project, supported evidence that family caregivers aren't given the information they need to manage the complex care regimens of family members. This series of articles and accompanying videos aims to help nurses provide caregivers with the tools they need to manage their family member's health care at home.

The articles in this new installment of the series provide simple and useful instructions that nurses should reinforce with family caregivers who perform wound care tasks. Each article also includes an informational tear sheet—*Information for Family Caregivers*—that contains links to instructional videos. To use this series, nurses should read the article first, so they understand how best to help family caregivers, and then encourage caregivers to watch the videos and ask questions. For additional information, see *Resources for Nurses*.

Patients discharged from hospitals may leave with wounds that require care at home. These wounds may be due to surgery or pressure damage, or the consequence of long-standing chronic conditions, such as venous insufficiency. Some are quite complex and their management requires considerable skill and confidence.

In a recent study of the challenges faced by family caregivers, 35% of those sampled reported performing wound care.¹ Importantly, 66% of these caregivers indicated that wound care was difficult for them.¹ For almost half, fear of making mistakes or causing harm was even more of a concern than the time and inconvenience of providing wound care.¹ Although many caregivers received some instruction prior to performing wound care, 42% learned on their own. Clearly, family caregivers would benefit from more support and training.

Nurses play an important role in preparing these caregivers to perform wound care, which includes basic assessment and treatment of acute postoperative or chronic wounds. Providing wound care at home can be a stressful experience for nonprofessional caregivers. They need to learn skills that will enable them to assess and clean the wound, as well as apply treatment. Because every wound and patient is different, nurses should provide caregivers with individualized instructions. Demonstrations of wound care should be available to family caregivers in multiple forms (both written and spoken instructions, for example). This helps to ensure the caregiver has easy access to

this information at home. Patients and caregivers will need to learn how to identify normal wound healing as well as the signs and symptoms of infections or complications, which should be reported to the patient's health care professional as soon as possible.

The ideal time to engage family caregivers, if they are available, is while the nurse is performing wound care in the hospital. This enables the nurse to determine the family caregiver's understanding of the patient's condition and the care that will be required at home. It also provides an opportunity to demonstrate how to perform necessary procedures. Discussions about wound care after hospitalization should start as early as possible to give the family caregiver time to process this information and identify questions and concerns. It's important to recognize that this task can evoke a variety of emotions, including fear and concerns about safety, among caregivers. Nurses should provide information in a clear manner, including instructions and details about how to obtain supplies, and strive to promote a discussion in which questions and mutual problem-solving are encouraged.

WOUND HEALING

The primary goals of wound care are to prevent infection, prevent further skin breakdown, relieve pain, and promote wound closure. Wounds heal in a sequential and overlapping process in which hemostasis, inflammation, repair, and remodeling or scar formation occur.² The length of these wound-healing phases differs in each patient and is affected by factors such as



A nurse teaches a family caregiver how to assess a diabetic foot ulcer and safely change the dressing. Photo courtesy of the AARP Public Policy Institute.

advanced age, obesity, and a history of smoking or diabetes.³⁻⁵

Prior to the discharge of a patient with a wound, the nurse must formulate recommendations based on the context and setting in which the care will occur. Caregiver and patient preference must be considered, as should the home environment. The nurse can then make recommendations that help to promote adherence.

DRESSING CHOICE

Dressings should help to keep the skin surrounding the wound dry and intact. The dressing should be breathable to avoid maceration of surrounding skin. Conversely, too much dryness of an open wound can lead to a dry eschar overlying the wound bed, increasing pain and delaying healing.

Treatment of open wounds aims to alleviate symptoms, promote healing, and prevent adverse outcomes, such as infection, amputation, pain, and disability. Dressings used on deep or complex wounds are often designed to address moisture balance and promote debridement and may be antimicrobial.⁶

SURGICAL INCISIONS

Surgical incisions are considered acute wounds and heal through primary intention unless there is dehiscence or a delay in healing. During surgery, the wound edges are approximated and sutured, glued, or stapled together. Nurses caring for patients after surgery should engage both patients and family caregivers in

efforts to prevent surgical site infections and promote healing.

Treatment. In patients who have wounds that have been sutured, stapled, or glued closed, the surgeon typically recommends showering within 12 to 48 hours of surgery. The caregiver should then pat the wound dry using gauze, a clean towel, or a paper towel.

The wound is usually covered with a sterile dressing immediately after surgery. Early dressing of the wound is important to absorb any leakage and to protect the wound from trauma and infection. Postoperative wounds typically require a clean dry gauze dressing. An absorbent dressing is needed if the wound is leaking fluid, and a protective dressing is necessary if the wound is exposed to abrasive clothing (and, in some cases, to relieve pain). A nonadherent absorbent gauze or silicone dressing is sufficient for most postoperative incisions or lacerations.⁷ In the case of postoperative wounds that develop excessive exudate, there are newer, highly absorptive foam dressings that can be changed every four to seven days, or sooner if discharge penetrates the dressing.^{6,8}

Family caregivers should be instructed not to use antiseptics or other products on a surgical wound unless told to do so by a health care provider. In addition, the wound should not be soaked in water. Skin damage to the periwound skin—maceration and impaired wound healing—may occur if the area is exposed to excess drainage from the wound. Care must be taken to avoid the use of adhesive tape on fragile skin when securing the dressing. If available, use silicone tape to secure the dressing to the skin; when possible, attach tape to a gauze wrap placed over the dressing.

VENOUS ULCERS

Venous ulcers occur on the legs. Approximately 70% of leg ulcers are due to venous insufficiency.⁹ Venous leg ulcers are a result of inflammation caused by venous hypertension in the lower extremities.¹⁰ After they are healed, most venous ulcers recur and need continuous monitoring and treatment to prevent disability and amputation.¹¹

Because of the complex needs of people with venous ulcers, these patients are typically referred to a wound care specialist. This care should be supplemented by nurse engagement with the caregiver and patient regarding home wound care.

Prevention. Obesity and venous stasis contribute to the development of venous ulcers. A weight loss plan that includes a focus on wound healing and the promotion of exercise should be developed with caregiver and patient input. Because exercise can improve hemodynamic performance and prevent ulcer recurrence, many venous ulcer management programs encourage



Information for Family Caregivers

Wound Care

- Wash hands before and after changing a dressing.
- Wear gloves during all dressing changes.
- Dispose of the old dressing in a plastic bag before placing it into the garbage.
- Cleanse the wound before applying a new dressing. The wound can be cleansed by the patient using water in the shower, or by the caregiver, who can spray saline on the wound to clean it.

Wound Type	Assessment	Prevention and Treatment	When to Contact a Health Care Provider
Surgical Incisions	During every dressing change, check for <ul style="list-style-type: none"> • redness. • swelling. • a change in wound drainage (color or amount). • separation of wound edges. • increased pain. 	<ul style="list-style-type: none"> • The patient should shower per the surgeon's orders. • No baths until they are cleared by the surgeon. • Use prescribed dressings (usually a plain or silicone nonstick dressing). 	Contact a health care provider <ul style="list-style-type: none"> • if the patient has a fever or the chills. • if there is an increased amount of pain, swelling, or redness. • if the wound separates. • if there is a change in wound drainage (color, odor, or amount).
Venous Ulcers	During every compression bandage change, check for <ul style="list-style-type: none"> • redness. • swelling. • a change in wound drainage (color, odor, or amount). • increased pain. 	The patient should <ul style="list-style-type: none"> • wear daily compression bandages. • lose weight, if overweight. • follow a walking regimen. • change dressing as prescribed. • elevate legs for 30 minutes, three times per day. 	Contact a health care provider <ul style="list-style-type: none"> • if the patient has a fever or the chills. • if there is an increased amount of pain, swelling, or redness. • if there is a change in wound drainage (color, odor, or amount).
Diabetic Foot Ulcers	<ul style="list-style-type: none"> • Check between toes for any maceration, redness, or breaks in the skin. • Monitor the temperature of the feet. 	<ul style="list-style-type: none"> • Inspect the patient's feet daily. • Practice daily foot hygiene. • Practice good skin care, including the use of alcohol-free moisturizers. • Control blood sugar levels. • Ensure footwear fits properly. • Obtain regular toenail care by a professional. • Use off-loading techniques to manage wounds. • Before putting on shoes, check the inside for irregular, sharp surfaces or foreign objects. 	Contact a health care provider <ul style="list-style-type: none"> • if the patient has a fever or the chills. • if there is an increased amount of pain, swelling, or redness. • if there is a change in wound drainage (color, odor, or amount). • if calluses develop. These should only be removed by a professional.

Family caregiver instructional videos about wound care can be found on AARP's website:

 Diabetic Foot Care: Treatment and Prevention
<http://links.lww.com/AJN/A107>

 General Principles of Wound Care
<http://links.lww.com/AJN/A105>

 Caring for Lower Extremity Wounds and Cellulitis
<http://links.lww.com/AJN/A106>

For additional information and to access these videos in Spanish, visit AARP's Home Alone Alliance web page: www.aarp.org/nolongeralone.



Resources for Nurses

 Diabetic Foot Care: Treatment and Prevention^a
<http://links.lww.com/AJN/A109>

 General Principles of Wound Care^a
<http://links.lww.com/AJN/A110>

 Caring for Lower Extremity Wounds and Cellulitis^a
<http://links.lww.com/AJN/A111>

AJN's resource page for supporting family caregivers includes previous articles and videos in this series.
<http://links.lww.com/AJN/A81>

^aFamily caregivers can access these videos, which are available in English or Spanish, as well as additional information and resources, on AARP's Home Alone Alliance web page: www.aarp.org/nolongeralone.

ambulatory patients to develop regular walking regimens. Elevation has also been shown to increase oxygen delivery by improving venous return and reducing edema and healing time.¹⁰ Patients should elevate their legs for 30 minutes, three times per day.

Treatment. Compression bandaging is the mainstay treatment for venous ulcers. Compression improves the return of blood flow from the lower extremities and speeds the healing rate of venous leg ulcers.^{10,12,13} It's important that the nurse and family caregiver engage the patient in the treatment plan to improve adherence. The treatment plan should include wound care instructions, details about pain control options, and tips for how the patient can address the bulkiness of the compression stockings or garments when wearing footwear. The best compression bandage for home use is the one the patient will use regularly, so it's important to find one that best meets the patient's daily needs while also contributing to the healing of wounds and the prevention of future wounds.

Compression bandaging is the mainstay treatment for venous ulcers.

It can be difficult for someone with decreased hand strength and dexterity to apply compression bandages or garments.¹³ Poorly applied bandages can result in the swelling of tissue in areas adjacent to the edges of the compression bandage and further skin ulceration in edematous areas. New compression wraps have been designed to provide ease of use.

DIABETIC FOOT ULCERS

Approximately 30.2 million American adults—about 12% of the population—are believed to have diabetes.¹⁴ Diabetic foot ulcers are the most common complication of diabetes, with an estimated 15% of patients with diabetes predicted to develop diabetic foot ulcers during their lifetime.¹⁵

Multiple risk factors are associated with the development of diabetic foot ulcers: duration of diabetes longer than 10 years; advanced age; a high body mass index; sex (male); and other conditions, such as retinopathy, peripheral neuropathy, peripheral vascular disease, elevated glycosylated hemoglobin levels, foot deformities, high plantar pressure, gait instability, and inappropriate foot self-care.¹⁶⁻²⁰ Local foot issues that can contribute to diabetic foot ulcers include minor trauma, improperly fitted shoes, the formation of calluses, limited joint mobility, and abnormal plantar foot pressure.²¹⁻²⁴

Prevention. Because patients with diabetes often have neuropathy, pain from trauma may go unnoticed. This trauma can result in a skin ulceration or diabetic foot ulcer. Educational programs can reduce the incidence of foot ulcers among people with diabetes, highlighting the importance of involving both patients and family caregivers in the promotion of health and well-being. Caregivers should be aware of the need to frequently inspect the patient's feet to identify blisters and cuts; they should also ensure that the patient has well-fitted footwear and uses off-loading techniques that can help to prevent and heal foot ulcers. Calluses should be trimmed by a health care professional only.

Treatment. The primary management goals for diabetic foot ulcers are to avoid infection, obtain wound healing, and control pain. To achieve this, frequent assessment of the wound, wound cleansing, the application of a protective dressing that promotes a moist healing environment, and plantar off-loading are necessary.²⁵

Off-loading of the wound with specialty boots or casting is one of the most important components of managing and promoting the healing of diabetic foot ulcers.²⁶ The gold standard off-loading technique involves the use of a total contact cast. The cast is designed to relieve pressure on the ulcer and redistribute this across the surface of the foot.²⁵ The casting procedure is advantageous because it ensures patients will comply with treatment; however, this technique is not always favored by patients.^{17,27} The disadvantages of casting include the following: it must be applied by an expert, it is costly and may cause skin irritation if not applied correctly, it limits daily activities (potentially affecting sleep and bathing routines, for example), it is contraindicated when the patient has an infection,

and it does not allow for daily skin assessment.^{17,27} For these reasons, off-loading boots are more commonly used. Health care providers should encourage the patient to wear an off-loading boot whenever she or he is bearing weight on the foot.

PATIENT AND FAMILY CAREGIVER EDUCATION

Teaching patients and caregivers about the early detection of both local and systemic infections is a priority during the discharge process. The signs and symptoms of a local wound infection include increased redness, increased pain, wound dehiscence, an increased amount of or change in the color of exudate, or malodor. The signs and symptoms of systemic infection include fever, chills, and sweating, and a person with diabetes may have increased blood sugar levels. If any of these symptoms occur, it's important that the family caregiver is aware of the need to contact a health care professional immediately.

Patients and caregivers who receive thoughtful education on skin care become active participants in the plan of care and have greater knowledge about promoting wound healing and preventing infection. Educational interventions are likely to be more effective if they are multifaceted and broadly applicable, meeting various health literacy needs. In addition to the videos featured in this article, nurses can use various educational programs and tools—including written material, illustrations, images, videos, computer technology, and smartphone demonstration videos—to meet different learning and language needs and to achieve patient and caregiver engagement in care.^{7,28} ▼

Holly Kirkland-Kyhn is the director of wound care and Oleg Teleten is a wound care specialist, both in the Patient Care Services Department of the University of California, Davis, Medical Center in Sacramento, where Stephanie Anne Generao is an NP in the vascular clinic. Heather M. Young is dean of the Betty Irene Moore School of Nursing at the University of California, Davis, and associate vice chancellor for nursing at UC Davis Health. Contact author: Holly Kirkland-Kyhn, kirklandwalsh@ucdavis.edu. The authors have disclosed no potential conflicts of interest, financial or otherwise.

REFERENCES

- Reinhard SC, et al. *Home alone: family caregivers providing complex chronic care*. Washington, DC: AARP Public Policy Institute; 2012 Oct. http://www.aarp.org/content/dam/aarp/research/public_policy_institute/health/home-alone-family-caregivers-providing-complex-chronic-care-rev-AARP-ppi-health.pdf.
- Gantwerker EA, Hom DB. Skin: histology and physiology of wound healing. *Facial Plast Surg Clin North Am* 2011;19(3):441-53.
- Eming SA, et al. Wound repair and regeneration: mechanisms, signaling, and translation. *Sci Transl Med* 2014;6(265):1-16.
- Evans DC, et al. Nutrition optimization prior to surgery. *Nutr Clin Pract* 2014;29(1):10-21.
- Pierpont YN, et al. Obesity and surgical wound healing: a current review. *ISRN Obes* 2014;2014:638936.
- Sood A, et al. Wound dressings and comparative effectiveness data. *Adv Wound Care (New Rochelle)* 2014;3(8):511-29.
- Tartari E, et al. Patient engagement with surgical site infection prevention: an expert panel perspective. *Antimicrob Resist Infect Control* 2017;6:45.
- Seaman S. Dressing selection in chronic wound management. *J Am Podiatr Med Assoc* 2002;92(1):24-33.
- Agale SV. Chronic leg ulcers: epidemiology, aetiopathogenesis, and management. *Ulcers* 2013;2013:413604.
- O'Donnell TF, Jr., et al. Management of venous leg ulcers: clinical practice guidelines of the Society for Vascular Surgery and the American Venous Forum. *J Vasc Surg* 2014;60(2 Suppl):3S-59S.
- Grey JE, et al. Venous and arterial leg ulcers. *BMJ* 2006;332(7537):347-50.
- O'Meara S, et al. Compression for venous leg ulcers. *Cochrane Database Syst Rev* 2012;11:CD000265.
- White-Chu EF, Conner-Kerr TA. Overview of guidelines for the prevention and treatment of venous leg ulcers: a US perspective. *J Multidiscip Healthc* 2014;7:111-7.
- Centers for Disease Control and Prevention. *National diabetes statistics report, 2017. Estimates of diabetes and its burden in the United States*. Atlanta; 2017. <https://www.cdc.gov/diabetes/pdfs/data/statistics/national-diabetes-statistics-report.pdf>.
- Leone S, et al. [Epidemiology of diabetic foot]. *Infez Med* 2012;20 Suppl 1:8-13.
- Iraj B, et al. Prevention of diabetic foot ulcer. *Int J Prev Med* 2013;4(3):373-6.
- Liden B. Total contact cast system to heal diabetic foot ulcers. *Surg Technol Int* 2017;30:71-6.
- McEwen LN, et al. Prevalence and risk factors for diabetes-related foot complications in Translating Research Into Action for Diabetes (TRIAD). *J Diabetes Complications* 2013;27(6):588-92.
- Shahbazian H, et al. Risk assessment of patients with diabetes for foot ulcers according to risk classification consensus of International Working Group on Diabetic Foot (IWGDF). *Pak J Med Sci* 2013;29(3):730-4.
- Waaajman R, et al. Risk factors for plantar foot ulcer recurrence in neuropathic diabetic patients. *Diabetes Care* 2014;37(6):1697-705.
- Edmonds ME, et al. Improved survival of the diabetic foot: the role of a specialized foot clinic. *Q J Med* 1986;60(232):763-71.
- Fernando DJ, et al. Relationship of limited joint mobility to abnormal foot pressures and diabetic foot ulceration. *Diabetes Care* 1991;14(1):8-11.
- Lavery LA, et al. Predictive value of foot pressure assessment as part of a population-based diabetes disease management program. *Diabetes Care* 2003;26(4):1069-73.
- Reiber GE, et al. Causal pathways for incident lower-extremity ulcers in patients with diabetes from two settings. *Diabetes Care* 1999;22(1):157-62.
- Armstrong DG, et al. It's not what you put on, but what you take off: techniques for debriding and off-loading the diabetic foot wound. *Clin Infect Dis* 2004;39 Suppl 2:S92-S99.
- American Diabetes Association. Consensus development conference on diabetic foot wound care. 7-8 April 1999, Boston, MA. *Adv Wound Care* 1999;12(7):353-61.
- Prompers L, et al. Delivery of care to diabetic patients with foot ulcers in daily practice: results of the Eurodiale Study, a prospective cohort study. *Diabet Med* 2008;25(6):700-7.
- Kirkland-Kyhn H, Teleten O. One institution's accommodation of the CARE Act. *Ostomy Wound Manag* 2017;63(6):8-10.