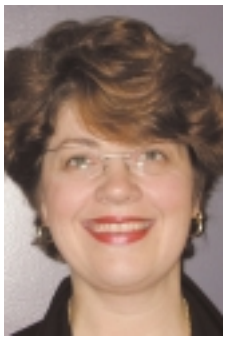
Cost-effective Wound Care:

How the Advanced Practice Nursing Role Can Positively Affect Outcomes in an Acute-care Setting



BY
Laura M. Teague
AND

James L. Mahoney

Across the country, hospital and home-care administrators, health-care professionals and the government are trying to manage the rising costs of health-care. There are issues around providing optimal care for an aging population while containing the costs. The price of a wound dressing alone is not a reflection of the overall cost effectiveness in treating a wound. All aspects of the delivery of care, including materials and resources, must be considered.

Working in acute-care is like navigating through white water. Competing priorities and acuity levels can cloud and minimize some of the basic health-care needs for patients.

The acute-care nurse practitioner (ACNP) role within an acute-care setting has afforded our hospital the ability to operationalize best practices in wound care, thus contributing to cost-effective health care.

One case illustrates the role of the ACNP within the acute-care centre. It involves Mr. L., a 21-year-old man with type I diabetes. This patient was admitted to the medical unit with diabetic keto-acidosis. His past medical history included retinopathy, nephropathy and neuropathy. In addition to his end-organ complications, Mr. L. had three traumatic wounds on the pretibial area of his left leg. The largest was approximately 3 cm x 3 cm. Mr. L. was referred to the nurse practitioner for wound care.

FIGURE 1

When his history was obtained, Mr. L. revealed that his health-care team had prescribed a local antibiotic cream to the affected areas. This treatment had been performed daily for eight months, with no change in the wound status. He was told by his doctor that because he was diabetic, the wounds would never heal and he would likely lose his leg.

His physical assessment revealed three wounds, classified as AI according to Falanga's chronic wound assessment tool[2] (see Figure 1). The leg was edematous; there were pulses present, and no signs of vascular insufficiency. There were no obvious signs of acute infection.

After review and correction of metabolic derangements, appropriate investigations were organized: a duplex scan and wound cultures. Bacterial balance and edema were identified as major factors influencing delayed wound healing.[1,4,5] In collaboration with the medical team, the patient was prescribed nanocrystalline silver dressings to the wounds and external modified elastic compression to control the edema in the lower leg.[6]

The patient was discharged to community care and was seen twice in the first week and weekly thereafter. At week three, Mr. L. returned to the clinic with closed wounds (see Figure 2). He was educated regarding the importance of edema control (for life). Elastic compression stockings were prescribed and fitted in the ambulatory clinic. He was also referred to the Multidisciplinary Diabetes Complications Clinic for comprehensive diabetes care.

FIGURE 2

Cost-effectiveness is defined as "the cost to achieve the desired outcome."[4]

If we compare the two treatment regimens, and if we only consider the 'cost' of the products, the health-care system suffers with inappropriate use of scarce resources (see Table 1).

TABLE 1

Cost Comparison: Previous Management vs. Best Practice

Previous Care	Cost	Present Care	Cost
Nursing labour	$9,600.00	Duplex scan	$161.30
$40.00 x 240 visits		Nursing labour	$240.00
Fucidic acid cream	$ 240.00	$40.00 x 6 visits	
Gauze bandages	$ 360.00	Multi-layer bandage x 4	$100.00
Gloves	$ 48.00	Nanocrystalline silver 4x4 dressings (x2)	$26.00
		Dressing trays	$6.00
		Gloves	$1.20
Total	**$10,248.00**	**Total (best practice)**	**$534.50**
Outcome	No healing	Outcome	Closed wounds
Difference in cost:			**$9,713.50**

References

1. Browne AC, Vearncombe M, Sibbald RG. High Bacterial load in asymptomatic diabetic patients with neurotropic ulcers retards wound healing after application of Dermagraft. *Ostomy/Wound Management*. 2001;47(10):44-49.
2. Falanga V. Classifications for wound bed preparation and stimulation of chronic wounds. *Wound Repair and Regeneration*. 2001;8(5):3347-351.
3. Inlow S, Orsted H, Sibbald RG. Best practices for the prevention, diagnosis and treatment of Diabetic foot ulcers. *Ostomy/Wound Management*. 2001;46(11):55-68.
4. Ovington, LG. Dressings and adjunctive therapies: AHCPR guidelines revisited. *Ostomy/Wound Management*. 1999;45(1A):94S-106S.
5. Sibbald RG, Williamson D, Orsted H. Preparing the wound bed: Debridement, bacterial balance and moisture balance. *Ostomy/Wound Management*. 2000;46(11):14-35.
6. Kunimoto B, et al. Best practice for the prevention and treatment of venous leg ulcers. *Ostomy/Wound Management*. 2001; 47(2):34-50.

Laura M. Teague, RN, MN, ACNP Wound Care; and **James L. Mahoney, MD, FRCSC,** are with the Division of Plastic Surgery, University of Toronto, Mobility Program, St. Michael's Hospital, Toronto, ON