

# The Value of Medical Technology in Wound Treatment: Improving Lives, Saving Costs

Wounds are breaches in the structure of the skin that compromise skin function. They can be painful and lead to additional medical complications. Wounds become chronic when they have not completed the healing process in the expected time frame, usually within 30 days.<sup>1</sup> Standard wound care may not be sufficient to jump start a stalled wound; advanced wound therapies can help reduce the total cost of care and help restore a patient's quality of life.



**5 - 7 MILLION**

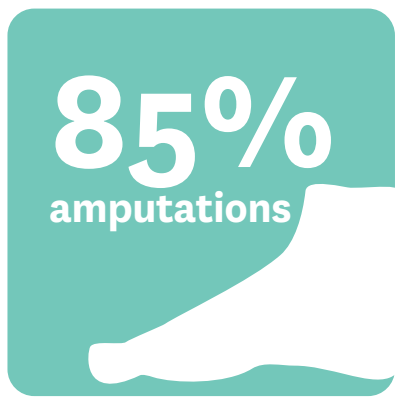
Episodes of non-healing cutaneous wounds each year in the United States.



**\$20 BILLION**

Estimated annual cost to the U.S. health care system.<sup>2</sup>

## DIABETIC FOOT ULCERS



Foot ulceration is the precursor to approximately 85 percent of lower extremity amputations in persons with diabetes.<sup>3</sup>

## VENOUS LEG ULCERS



An estimated two and a half million Americans are affected by venous leg ulcers each year, at a cost of \$14.9 billion to the health care system.<sup>4</sup>

## PRESSURE ULCERS



The estimated cost of managing a single full-thickness pressure ulcer is nearly \$70,000.<sup>5</sup>

## treatment

Medical technology has helped to evolve wound treatment dramatically over the past 15 years, from simple dressings to sophisticated, evidence-based options that treat and promote wound healing.<sup>6</sup>

### dressings promote rapid healing



Cellular and/or tissue based products for wounds promote rapid closure of diabetic foot ulcers and lead to a higher percentage of wounds closed than conventional therapy.

Antimicrobial dressings act on multiple sites within microbial cells and reduce the likelihood of bacteria developing resistance.<sup>7</sup>

Collagen dressings have been shown to reduce frequency of nursing visits and optimize wound healing time, subsequently reducing health care costs.<sup>8</sup>

### vacuum therapy reduces emergent care



Negative pressure wound therapy reduces incidence of emergent care and hospitalizations for pressure ulcer patients, reduces secondary amputations for patients with diabetic foot ulcers, and reduces healing time for patients with chronic wounds.

Therapeutic support surfaces have demonstrated a threefold improvement in median rate of healing, compared with foam mattresses.<sup>9</sup>

## medtech as a solution

Estimates indicate that wounds account for nearly 4 percent of health care system costs, and that number is rising.<sup>10</sup>

### clinical benefit



Lowered incidence of re-admission, additional surgeries, and complications.<sup>11</sup>

Reduced amputation rates.<sup>12 13</sup>

Reduced healing times.<sup>14</sup>

Reduced incidence of surgical dehiscence and infection.<sup>15</sup>

### economic benefit



Reduced cost of care in acute and post-acute settings.<sup>16 17</sup>

Reduced the risk of hospitalization and emergent care episodes.<sup>18</sup>

Reduced total nursing time and wound related costs.<sup>19</sup>

Reduced risk of repeat skin graft and associated length of hospital stay.<sup>20</sup>

1. Snyder, David L, Nancy Sullivan, and Karen M Schoelles. "Skin Substitutes for Treating Chronic Wounds." Technology Assessment Report, 2012: ES-1.  
2. American College of Wound Healing and Tissue Repair and Angiogenesis Foundation. "Patient-Centered Outcomes in Wound Care." 2013.  
3. Frykberg, Robert G, et al. "Diabetic Foot Disorders: A Clinical Practice Guideline." The Journal of Foot and Ankle Surgery, 2006: Supplement #3.  
4. Robertson, L, Evans, C, and FGR Fowkes. "Epidemiology of Chronic Venous Disease" Phlebology, 2008: 103-111.  
5. Gordon, M D, M M Gottschlich, E I Helviq, J A Marvin, and R L Richard. "Review of evidence-based practice for the prevention of pressure sores in burn patients." Journal of Burn Care Rehabilitation, 2004: 388-410.  
6. American College of Wound Healing and Tissue Repair and Angiogenesis Foundation. "Patient-Centered Outcomes in Wound Care." 2013.  
7. Vowden, Peter, Kathryn Vowden, and Keryln Carville. "Antimicrobial dressings made easy." Wounds International, 2011: 1-6.  
8. Snyder, Robert J, Deborah Richter, and Mary Ellen Hill. "A Retrospective Study of Sequential Therapy with Advanced Wound Care Products versus Saline Gauze Dressings: Comparing Health and Cost." Ostomy Wound Management, 2010: Supplement 9-15.  
9. Ferrell, Bruce A, Dan Osterweil, and Peter Christenson. "A Randomized Trial of Low-Air-Loss Beds for Treatment of Pressure Ulcers." Journal of the American Medical Association 269, no. 4 (1993): 494-497.  
10. Drew P, Posnett J, Rusling L, on behalf of the Wound Care Audit Team. The cost of wound care for a local population in England. Int Wound J 2007;4:149-155.  
11. Page JC, Newswander B, Schwenke DC, et al. Retrospective analysis of negative pressure wound therapy in open foot wounds with significant soft tissue defects. Ad Skin Wound Care. 2004 17(7):354-64.  
12. Armstrong DG, Lavery L. Negative pressure wound therapy after partial diabetic foot amputation: a multicenter, randomized controlled trial. Lancet. 2005; 12 366(9498): 1704-10.  
13. Blume PA, Walters J, Payne W, et al. Comparison of negative pressure wound therapy using vacuum-assisted closure with advanced moist wound therapy in the treatment of diabetic foot ulcers - a multicenter randomized controlled trial. Diabetes Care Vol. 31; No 4; 631-636; 2008.  
14. Blume PA, Walters J, Payne W, et al. Comparison of negative pressure wound therapy using vacuum-assisted closure with advanced moist wound therapy in the treatment of diabetic foot ulcers - a multicenter randomized controlled trial. Diabetes Care Vol. 31; No 4; 631-636; 2008.  
15. Standard JP, Volgas DA, McGwin G III, et al. Incisional negative pressure wound therapy after high-risk lower extremity fractures. J Orthop Trauma. 2012; 26 (1): 37-42.  
16. Apelqvist J, Armstrong DG, Lavery LA, et al. Resource utilization and economic costs of care based on a randomized trial of vacuum-assisted closure therapy in the treatment of diabetic foot wounds. Am J Surg. 2008; 195 (5): 782-8.  
17. Lavery LA, Boulton AJ, Niezgoda JA, et al. A comparison of diabetic foot ulcer outcomes using negative pressure wound therapy versus historical standard of care. International Wound Journal. 2007; 4(2): 103-113.  
18. Schwen T, Gilbert J, Lang C. Pressure ulcer prevalence and the role of negative pressure wound therapy in home health quality outcomes. Ostomy Wound Manage. 2005; 51(9): 47-60.  
19. Vuerstaek JD, Vainas T, Wuite J, et al. State-of-the-art treatment of chronic leg ulcers: A randomized controlled trial comparing vacuum-assisted closure (V.A.C.) with modern wound dressings. J Vasc Surg 2006; 44: 1029-38.  
20. Scherer LA, Shiver S, Chang M, et al. The vacuum assisted closure device. A method of securing skin grafts and improving graft survival. Archives of Surgery. 2002 Aug; 137 (8): 930-934.