How to Convince Decision Makers to Invest in Limb Preservation

By Venita Chandra, MD FACS; Karim Manji, DPM FACFAS; Richard Neville, MD FACS DMSVS

Limb preservation is a multifactorial challenge that is often limited by financial resources. Those deciding where to invest financial resources within health systems need to be made aware of the importance of adequately funding limb preservation activities and supports.

There is a growing need for wound care due to the aging population and rising rates of diabetes, chronic disease and obesity. Each of these factors interplay and raise the rates of non-healing wounds. In the United States alone, 5 to 7 million chronic wounds account for more than US$25 billion a year spent on direct and indirect wound care.[1] Most patients live for years if not decades with the implications resulting from non-healing wounds. Amputations can cost US$43,000 to $63,000, and patients who undergo such operations have less than a 50% chance of returning to independent mobilization.[2] This can have a major psychosocial impact, placing the patient at a higher risk for both mental and physical health challenges.

Many researchers have discussed how to improve limb preservation, with the major commonality centring around building multidisciplinary teams like Mills, et al.'s "Toe and Flow" program.[3] Mills's program looked at the impact of pairing podiatric surgery with a vascular surgical hospital-based limb preservation service and found a significantly decreased major amputation rate and increased number of vascular and non-vascular procedures. The Zivot Limb Preservation Centre was the first Toe and Flow team in Canada, and this approach demonstrated a 42% reduction in major amputation rates.[1] However, multidisciplinary teams are primarily located in in-patient programs and often do not provide outreach to communities.

A key factor in limb preservation success is systematic wound care (Figure 1). This involves implementing holistic evaluations of patients, including assessing for risks and comorbidities. Additionally, weekly standardized wound care is ideal and can include debridement, offloading and edema and fluid management. These efforts, however, can be costly. Financial limitations can restrict access to limb-saving care and significantly alter the course of treatment.

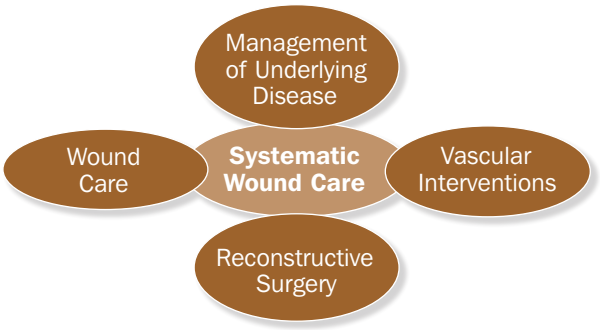

Figure 1: Systematic Wound Care.

A Successful Model

In 2014, Chandra and her team formed a wound centre that referred patients to a tertiary vascular surgery practice. This tertiary practice could then send patients who presented with wound-care-related issues to a wound centre. Prior to the opening of the centre, limb preservation patients were juggled among a number of care providers in a fragmented, lengthy and costly process. The result of Chandra's team approach was a marked improvement in patient care before and after the facility opened:

- A 20% increase in the total volume of cases over three years
- A 64% increase in lower extremity interventions
- An increased number of wound cases as a result of patients having access to specialized care
- A relative decrease in patients treated for claudication compared with diabetic foot ulcers
- Minor amputations increased while major amputations decreased[4]

In the long-term, overall amputations decreased significantly. Only 35% of patients went from the wound centre to the vascular surgery practice, but 65% of patients in the vascular surgery practice were sent to the wound care centre. Compared with other surgery practices, this centre had one of the shortest stays, the lowest mortality index and a dramatically lower 30-day readmittance rate.

The research from the wound care clinic has suggested that systematic care as recommended by best practices is an important component of any limb preservation program. The opening of an outpatient wound centre had a significant positive impact on its affiliated vascular surgery practice. Peripheral interventions increased, amputations decreased, and there were more positive inpatient outcomes. Patients were able to access the necessary care in a more timely and effective manner, thus reducing the overall strain on inpatient health-care centres. ■

Venita Chandra earned her BS in genetics and cell biology from the University of Minnesota in 1999. In 2004, she received her medical degree from the University of Chicago's Pritzker School of Medicine. She completed her general surgery residency at Stanford in 2011 and is a graduate of the Stanford Biodesign program. She continued on to complete the Stanford Vascular Surgery Fellowship. She is double boarded in general and vascular surgery. She is currently a clinical associate professor of surgery in the division of vascular surgery at Stanford. She is medical director of the Stanford Advanced Wound Center and program director of the Vascular Surgery Training Program and is the founder of the Stanford Extremity Preservation Program (StEPP).

Karim Manji is Director of the Zivot Limb Preservation Centre and President of the Association of Alberta Podiatric Surgeons. He is board-certified by the American Board of Foot and Ankle Surgeons. He has an interest in the diabetic foot, particularly ulcers and wound care. He is currently involved in research surrounding the impact of technology and its ability to improve healing times for diabetic foot ulcers, and to reduce rates of re-ulceration. He is also interested in tendon releases in the foot and ankle to help treat diabetic foot ulcers.

Richard Neville is Chairman of Surgery at INOVA Fairfax Medical Campus, Associate Director of the INOVA Heart and Vascular Institute and Vice-Chairman in the Department of Surgery. His prior positions include Professor of Surgery and Ludwig Chief of the Division of Vascular Surgery at George Washington University, and Chief of Vascular Surgery at Georgetown University. He completed medical school at the University of Maryland and a general surgery residency at Georgetown University before moving on to a fellowship at the National Institutes of Health in endovascular device development. He then completed a vascular surgery fellowship under the direction of Dr Robert Hobson.

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