

## REVIEW

### Understanding the financial benefits of optimising wellbeing in patients living with a wound

Chronic wounds represent a complex chronic condition with multiple consequences for patient health and quality of life and, therefore, must be managed within a patient-centred, multidisciplinary framework that extends beyond clinical treatment and attempts to optimise the total wellbeing of each patient. In this article, the author reviews data on the quality of life of patients with chronic wounds produced by a community care agency in Canada that has been developing and implementing a comprehensive, chronic disease management/wellbeing approach to wound care since 2010. Initial results indicate the extent to which wounds negatively impact patient wellbeing. Methods of estimating potential costs and benefits of wounds and wound care, both for patients and for the larger community, are also discussed.



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Chronic wounds represent a major burden for patients, families, care givers, and healthcare organisations. Wounds cause pain, suffering, sepsis, infection, nausea, fatigue, depression, psychological disturbances, loss of function, loss of mobility, and personal financial cost. In many cases, wounds lead to amputation and even death.<sup>[1-3]</sup> Wound chronicity can be a major, yet often preventable, barrier to successful recovery from a range of medical conditions or surgical procedures – from routine surgical interventions, to chronic conditions such as diabetes, to the disabilities associated with older age.

While chronic wounds occur in all age-groups, the majority occur among older people.<sup>[4]</sup> Globally, the population is aging rapidly: in high-income countries the percentage of the population over 65 years of age is expected to increase from 15.9% to 26.5% by the year 2050. In low- and middle-

income countries, this figure is expected to increase even more rapidly, from 5.8% to 14.6% by 2050.<sup>[5]</sup> Population aging is closely associated with an increased incidence of major chronic disease, such as cardiac disease and diabetes, as well as wounds.<sup>[6]</sup> In high-income countries, chronic disease is already the leading cause of illness, disability, and death. Population aging will continue to place strain on healthcare organisations, infrastructure, and expenditures around the world.

#### THE COST OF CHRONIC WOUNDS

Measuring the costs associated with chronic disease is challenging. In the case of chronic wounds, costs are often poorly documented or hidden within other general cost categories, such as hospital bed days or nursing hours. This is, in part, due to the relatively low profile of chronic wounds and the complexity of wound management.<sup>[7]</sup>

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**“People 'at risk' of or those living with a wound face major changes in their everyday lives and need to integrate a number of treatment-related procedures that may be difficult to adopt long term and conflict with existing lifestyles, priorities and behaviours.”**

**From: International Consensus. Optimising Wellbeing in People Living with a Wound.**

In addition, the focus is often on the direct costs associated with clinical care only, without consideration of the indirect or non-monetary impacts of a wound on patient wellbeing. Wound care is not yet fully integrated into the broader context of chronic disease management. It has been reported that healthcare professionals and society in general do not yet fully recognise the complexities and heavy social burden that living with a chronic wound has on patients. Further, wounds are often not viewed as a high priority relative to other conditions because they are not considered to be life-threatening.<sup>[8]</sup>

A recent international consensus published by *Wounds International* has concentrated on patient wellbeing and investigates the link between improved wellbeing resulting from optimal wound care and economic and social benefits.<sup>[9]</sup>

The impact on patients living with chronic wounds varies over time and is influenced by culture and context. The impact may be physical, social, psychological, and spiritual, and affect not only the patient but their family, caregivers, and society in general.<sup>[9]</sup> While the literature is inconclusive on the relationship between chronic wounds and depression, clinicians and patients have anecdotally reported a strong relationship between the two.<sup>[8]</sup> Further, there are indirect costs to society when people with chronic conditions are unable to work or participate in the community.

### A CHRONIC DISEASE MANAGEMENT/ WELLBEING APPROACH TO WOUND CARE

The management of chronic wounds requires a patient-centered, chronic disease management approach, in which patients are educated and in control of their care by making informed decisions and all aspects of quality of life and wellbeing are considered as important as clinical interventions. Such an approach should encompass the measurement of patient impacts and costs, so that all outcomes – including quality-of-life improvements, as well as clinical healing – can be measured and monitored. The international consensus has suggested that clinicians need to understand the importance of the person (not just the patient) and to have insight beyond the medical condition and into the quality of

life and impact on everyday life of that individual.<sup>[9]</sup> Therefore, it is necessary to find ways to describe and quantify quality-of-life impacts, improvements resulting from various therapies, and their cost-effectiveness.

Tools and methodologies are available to assist in the measurement of patient wellbeing. One such tool is a 12-item short-form health survey (SF-12), which has been used internationally. The SF-12 is designed to capture the perception of health and wellbeing from the patient's point of view and comprises a physical and a mental component summary.<sup>[10-11]</sup> The two component scores range from 0 (worst possible health state) to 100 (best possible health state). The scales are based on population norms, whereby a score of 50 represents the mean score of individuals in the US population. Scores higher than this represent better than average health, while scores lower than 50 represent worse than average health states.<sup>[11-14]</sup>

The literature includes a vast number of published studies using the SF-12, with over 37 million surveys completed.<sup>[11]</sup> The tool enables clinicians to measure quality of life indicators and to track both physical and mental health progression and regression over time. It provides a mechanism to compare the impact of various chronic conditions, including chronic wounds, and to compare types of chronic wounds. The SF-12 also measures the impact of treatments on quality of life. Many treatments may reduce, rather than enhance, quality of life, particularly in the short term, and it is important for clinicians to monitor treatments not just medically, but from a patient-centered perspective that takes wellbeing into account.

### COLLECTING AND USING SF-12 DATA

A comprehensive wound management programme was initiated in 2010 by an agency that coordinates home care throughout a diverse, urban–rural region of Canada. The population of the service area is approximately 1.6 million and the agency currently oversees care for about 30 000 patients.

The agency's wound care programme is patient-centred and multidisciplinary. Key components include evidence-based, best-practice protocols and clinical pathways, training and education for clinicians and case managers, comprehensive assessments of

## Page points

1. SF-12 results were compiled for 1228 patients from the Canadian cohort living in the community with wounds; the average SF-12 physical component score was 35.4.
2. Results from the Canadian cohort are consistent with other reports in the literature, and suggest that chronic wounds impact quality of life to a degree comparable with other major diseases.
3. The ability to quantify quality of life makes it possible to compare health conditions across the spectrum of chronic wounds and chronic diseases, and also to compare incremental gains associated with interventions, such as improvements in wound care treatments or technologies.
4. Health Technology Assessment agencies have sought to put a value on a year of life; this concept is often referred to in quality adjusted life years (QALYs), which combine time in a particular health state with quality of life.

all patients, measurement and monitoring systems, and multidisciplinary team coordination.

The SF-12 is part of the patient assessment process. The tool is fully integrated into the ongoing administration of the programme in order to generate data for continuous programme improvement. Although the outcomes of the programme were not a controlled clinical trial a programme evaluation was performed. Average SF-12 scores from this cohort also enable comparisons with other chronic disease types.

## FINDINGS

SF-12 results were compiled for 1228 patients from the Canadian programme living in the community with wounds. The average wound duration was 62 weeks. The average SF-12 physical component score was 35.4. This score is lower than SF-12 scores reported for a range of other chronic disease types.<sup>[10,13,15-17]</sup>

Results from the Canadian cohort are consistent with the findings of Goodridge et al<sup>[15]</sup> who reported SF-12 scores for people with diabetes who had either a nonhealing or a healed wound. Those with unhealed wounds were found to have significantly lower SF-12 scores than those with healed wounds (35±8 vs 39±10; P=0.04).

Figure 1 provides a summary of SF-12 scores for patients with chronic wounds and several other chronic diseases from a review of ten studies compiled by Hopman et al.<sup>[18]</sup> These data suggest that chronic wounds impact quality of life to a degree comparable with other major diseases. The findings from the Canadian cohort are consistent with this pattern.

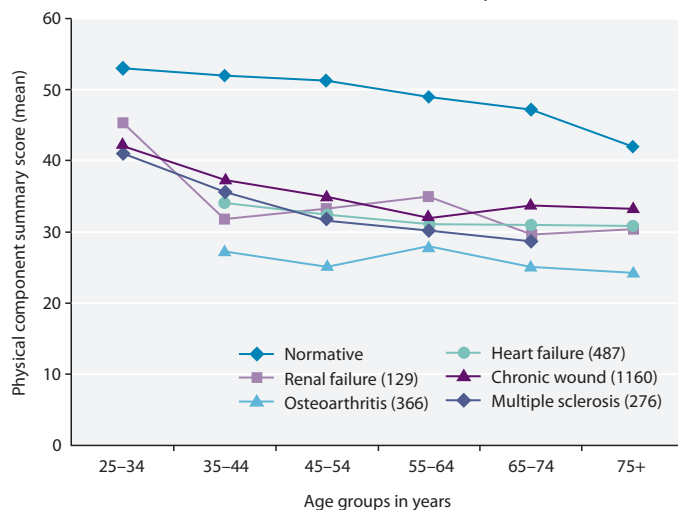


Figure 1. A summary of SF-12 scores for patients with chronic wounds and several other chronic diseases from a review of ten studies compiled by Hopman et al.<sup>[18]</sup>

## PUTTING A MONETARY VALUE ON QUALITY OF LIFE

There are substantial, measurable changes in quality of life for patients who are suffering with chronic wounds. The ability to quantify quality of life makes it possible to compare health conditions across the spectrum of chronic wounds and chronic diseases, and also to compare incremental gains associated with interventions, such as improvements in wound care treatments or technologies.<sup>[18-20]</sup>

Health policy makers are typically focused on monetary costs, but it is important that intangible costs, such as reduced quality of life to patients and their carers, are not overlooked. Proposing to put a cost on quality of life has been controversial and the values range widely based on gender, age, and nationality.<sup>[22-3]</sup> However, figures that represent the value of a year of healthy life have been defined in various countries throughout the world. Although imperfect, these values can help to quantify the costs that reductions in quality of life have on society, and enable comparative analysis of different health conditions and interventions.

Health Technology Assessment agencies, such as the National Institute for Health and Care Excellence (NICE) in the UK, have sought to put a value on a year of life to help inform resource allocation decisions. NICE typically values a year of life in "full health" at between GBP£20 000 and GBP£30 000. In Canada, CAD\$24 000 has been designated as the value of one year of healthy life for the average individual.<sup>[26]</sup> Thus, as quality of life is reduced, a cost is incurred up to a maximum of CAD\$24 000 per year. Quality-of-life tools, such as the SF-12, can help translate the impact of diseases into monetary terms; a low score on the SF-12 translates to a higher monetary loss to society, while a higher score translates to a lower monetary loss.

This concept is often referred to in quality adjusted life years (QALYs). The QALY combines time in a particular health state with quality of life. For example, an individual with a chronic wound rates their health at 50% of what they regard as perfect health and they remain in that health state for 5 years. In this scenario, the individual accrues only 2.5 QALYs (50% × 5 years) over a period of 5 years. Should a successful intervention to heal this person's wound be undertaken in a timely manner and result in an improvement in their health state

to 80% of perfect health, they will accrue 4 QALYs ( $80\% \times 5$  years) over a 5-year period; an increase of 1.5 QALYs. If the Canadian values quoted above are applied to this example, the additional QALYs gained from an effective wound care intervention reach a value of CAD\$36 000 ( $\text{CAD}\$24\,000 \times 1.5$ ). This figure can now be used in cost-effectiveness analysis to compare intervention costs with the benefits accrued in monetary terms.

If effective wound care is to be funded appropriately, it is important that researchers and clinicians in this field capture quality-of-life data. These data help not only to understand how treatment benefits the individual, but also to quantify the benefits of interventions against the cost of delivering them, and allows comparison with interventions in other specialties. In so doing, the case for increased investment in improved wound care pathways will be strengthened.

## CONCLUSIONS

The negative impact on patient quality of life and wellbeing of chronic wounds are comparable with those of other major chronic diseases. A comprehensive, chronic disease management approach is essential in order to deliver patient-centered, multidisciplinary care aimed at achieving positive outcomes in both clinical and quality-of-life terms.

This approach is illustrated by a comprehensive wound management programme focused on patient wellbeing that is now under way in Canada. Measurement of the impact of wounds and wound treatments on quality of life is integrated into this programme through the utilisation of the SF-12. Early SF-12 results suggest that the negative impact on quality of life associated with chronic wounds is comparable to that of many other serious chronic conditions. These findings demonstrate the need for clinicians and health administrators to optimise wellbeing and quality of life in patients with chronic wounds, as well as positive clinical outcomes.

These results also suggest that the financial benefits available to the community through quality-of-life improvements could be substantial. Further research is needed to define, examine and quantify the benefits of improved wellbeing for patients with chronic wound.

Traditionally, chronic wounds have been considered to be relatively minor health concerns, and wound care has often been

viewed as a specialty that uses simple clinical procedures and products. Quality-of-life initiatives under way in Canada suggest that wound care clinicians in the future should be equipped to manage both human and medical interventions, and to collaborate with patients holistically and respectfully, within a comprehensive chronic disease management/wellbeing framework. ■

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