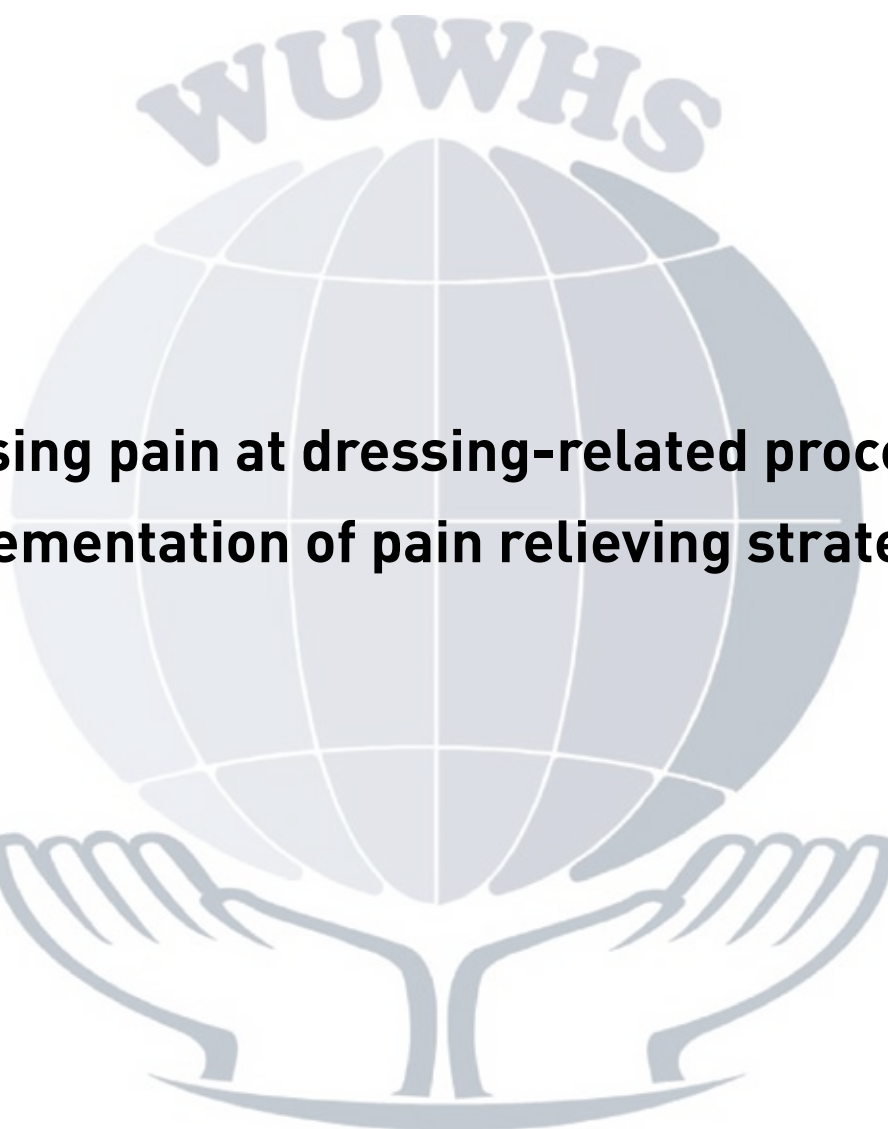


# A World Union of Wound Healing Societies Initiative



## PRINCIPLES OF BEST PRACTICE



**Minimising pain at dressing-related procedures:  
“Implementation of pain relieving strategies”**

## Evidence Informed Practice



## PRINCIPLES OF BEST PRACTICE

This consensus document is a World Union of Wound Healing Societies' educational initiative building from both the momentum established by our first pain document in 2004<sup>1</sup> and also our evidence informed practice activities in preparation for World Union Congress 2008. Its content has been inspired by the need to supply evidence informed practice recommendations for improving wound-related pain (WRP) at dressing procedures. As an international educational initiative, this document is aimed at healthcare providers, patients, payers and policymakers involved in dressing-related procedures. The document provides strategies for pain management and tools for their implementation into clinical practice. The principles presented are based on a modified Delphi consensus process,<sup>2</sup> combining evidence from the literature and its appraisal with expert knowledge from an international expert working group. For the concept of best practice to make a real difference in patient care, clinicians should consider adopting and, more importantly, implementing these recommendations, sharing them with colleagues, patients and caregivers. Pain assessment, management and documentation should be part of routine wound care, especially at every dressing procedure.

**Professors Gary Sibbald, Keith Harding and Patricia Price**

### PATIENT IMPRESSIONS

**“I have pain all the time. People don't believe that I have pain”**

**“It hurts so much it (pain) is running my life”**

**“The dressing got stuck and the nurses had to soak the dressings for a long time before I allowed them to take it off”**

**“I feel so ashamed of myself because of the pain”**

**“I feel powerless... not able to do the things I need to do”**

**“I don't want to be a burden to other people (because of the pain)”**

## INTRODUCTION

Pain is a common occurrence in patients with chronic wounds,<sup>3,4,5</sup> for example pressure ulcers, leg ulcers, and foot ulcers. Neuropathic pain is frequent in people with diabetes that have a loss of protective sensation. We define wound related pain (WRP) as a noxious symptom or unpleasant experience directly related to an open skin ulcer. WRP may be background (chronic or persistent) pain that is experienced most of the time, compared to acute incident/procedure related pain from routine dressing changes or operative procedures such as biopsy or debridement.<sup>1</sup>

Pain is best described by the patient as their subjective and personal experience.<sup>6</sup> Many personal factors influence the pain experience including mood, anxiety and pain expectation. Pain is often exacerbated by other local wound care factors including dressing removal, wound cleansing, debridement of necrotic tissue, bacterial damage and inappropriate choice of dressing. This would explain why the majority of patients feel that pain is most intense during dressing change.<sup>7,8</sup> To minimise pain, various strategies (pharmacological and non-pharmacological modalities) must be considered at the time of wound care related procedures including dressing change.<sup>9,10</sup>

Chronic unrelenting background WRP can have a negative impact on many daily activities, reducing patients' quality of life.<sup>11</sup> Patients describe wound-related pain as all encompassing and as one of the most devastating aspects of living with a chronic wound.<sup>12</sup> However, the incidence and significance of WRP is often underestimated.<sup>13,14</sup> Healthcare providers may consider pain management as a lower priority than other wound care issues, while patient surveys often rank the relief of pain as their most important concern.<sup>15,16</sup> To improve pain management, healthcare providers must reflect on their reluctance to prescribe and administer effective doses of pain medications due to common side-effects and unsubstantiated concerns about addiction.<sup>17</sup> Some clinicians avoid asking about pain for fear that this may heighten patients' awareness and, therefore, exacerbate pain! As knowledge about pain management continues to evolve, clinicians must keep abreast of the most current information to guide best practice initiatives and bridge the gap between scientific evidence and its integration into practice (knowledge transfer, implementation research).

A number of guidelines and consensus papers<sup>1,18,19</sup> have been produced in the past, including the first Consensus Document<sup>1</sup> from the WUWHS in 2004. The recommended three year periodic update of the new scientific evidence incorporating expert opinion and patient preference<sup>18</sup> has led to the development of the current document.

## GOALS AND OBJECTIVES

The chronic debilitating nature of wound-related pain necessitates a consistent evidence-informed care approach. The overall goal of this document is to raise awareness of WRP and make appropriate recommendations to integrate the management of wound pain into daily practice for healthcare providers, patients and policymakers. It is important to encourage an interprofessional team approach to provide optimal, documented and consistent pain management.

The purpose of this document is to:

- Update healthcare professional knowledge concerning wound-related pain.
- Formulate appropriate assessment of and documentation for wound-related pain.
- Appraise treatment strategies to reduce pain at dressing-related procedures.
- Incorporate the importance of the pain management to promote optimal wound healing and adequately preparing the wound bed.
- Recommend practical tools to implement practice change.

The ten identified consensus statements identified were initially developed by an international expert working group from several clinical disciplines. These consensus statements were further refined and modified based on the feedback from a web-based survey of wound care practitioners worldwide. In this document each statement is discussed individually, with the relevant evidence and expert opinion. Further details of the process and results can be found in an article submitted to the International Wound Journal.<sup>16</sup>

## CONSENSUS STATEMENTS

### 1 Identify and treat the cause of the chronic wound and address concerns expressed by the patient, including a pain assessment at each visit

Frequency of visits may vary, depending on individual patient needs, practice environment and professional standards.

#### **Wound-related pain may be alleviated by:**

- Optimising blood flow with surgical and medical interventions in patients with ischemic ulcers (claudication/rest pain).
- **Treating the cause, for example:**
  - Reducing oedema in patients with venous leg ulcers by applying compression therapy.
  - Instituting appropriate pressure redistribution to remove the pressure associated with ischemic damage to the underlying tissues in patients with pressure ulcers. Other factors that may potentially aggravate pain include incontinence, friction and shear.
- **Addressing concerns expressed by the patient:**
  - Improve pain-induced stress that can impede wound healing.<sup>21</sup>
  - Minimise neuropathic pain (burning, stinging, shooting, stabbing) which is not uncommon in persons with diabetes. If nociceptive pain (**GATT** – **G**nawing, **A**ching, **T**hrobbing, **T**ender)<sup>22</sup> suddenly develops in a patient with loss of protective sensation, deep tissue infection (osteomyelitis) or deep structural damage (e.g. Charcot Foot) must be considered and addressed and treated promptly.

## 2 Evaluate and document pain intensity and characteristics on a regular basis (before, during and after dressing-related procedures)

Wound-related pain may vary over time, necessitating frequent reassessment. Although the majority of patients identify dressing change as the most painful aspect of wound care,<sup>7,8,23</sup> patients also experience pain at rest between dressing changes and during their daily activities.<sup>8,16,24</sup> Assessment of the pain can help clinicians to differentiate the background pain from procedure-related pain. The purpose of ongoing pain assessment is to:

- Assess the temporal pain pattern for selecting and planning appropriate pain interventions
- Determine the effectiveness of pain treatments/interventions
- Analyse factors that can improve or worsen wound-related pain.
- Identify barriers (patient/system factors) that can affect pain management.

A comprehensive pain assessment can be summarised by the mnemonic **NOPQRST**<sup>25</sup> – **N**umber of painful sites, **O**rigin of Pain (what is the cause of the pain?), **P**alliative/Provocative Factors (what makes pain better or worse?), **Q**uality of Pain

(what words would you use to describe the pain?), **R**egion/ Radiation of pain (does the pain go any where?), **S**everity of pain (usually on a scale of 0 to 10), **T**emporal Aspect of the pain (does the pain get worse at night? Is it constant or intermittent?).

A variety of validated tools have been developed for pain assessment (Figure 1). The Visual Analogue Scale (VAS) is a commonly used uni-dimensional instrument to assess pain reported in the research literature.<sup>26</sup> However, older individuals often prefer verbal or numerical rating scales for their ease of use and concreteness. For the paediatric or cognitively impaired population, the Wong-Baker FACES scale<sup>27,28</sup> has been widely used in clinical practice. More recently the faces scale has been modified to reflect more adult orientated facial expressions. Behavioural pain tools encompass a wide range of indicators such as facial expression, body movements, crying or other vocal signals. These should be considered for patients who are not able to communicate verbally such as people with severe cognitive impairment.<sup>29,30,31,32,33,34</sup> To standardise assessments, the same scale should be selected for ongoing assessment of pain. A change in the pain level may indicate a need to reassess wound cause, new complications, the procedure, dressing, analgesic choice or other pain management interventions.

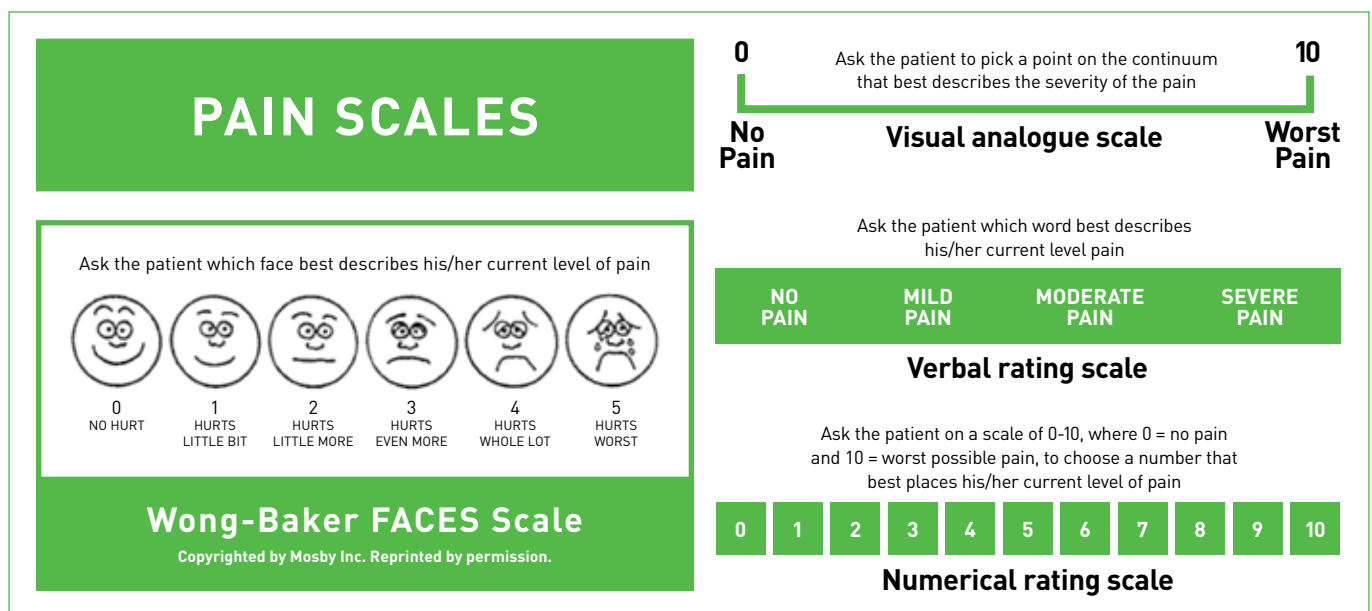


Figure 1 Examples of pain scoring scales<sup>1</sup>

## 3 Cleanse wound gently, avoid the use of abrasive wipes and cold solutions

Wound-related pain may be exacerbated during dressing changes with dressing removal and wound cleansing tending to being the most painful aspects.<sup>35,36,37</sup> To minimise pain, cleansing or irrigation solutions should be warmed to body temperature before use.<sup>38</sup> The routine practice of

using forceps or gauze to wipe the wound surface should be discouraged because this procedure may cause tissue damage and local prolonged pain.<sup>39,40,41</sup> Analgesics should be utilised to minimise pain or consider an alternative cleansing method (e.g. irrigation).

## 4 Select an appropriate method of wound debridement and include the potential for causing wound-related pain

Removing devitalised tissue is essential in preparing the wound for healing. Clinicians must be reminded that active or aggressive debridement should ONLY be considered in wounds where perfusion is adequate to support healing. There are different methods of debridement including: sharp, autolytic, mechanical, enzymatic, and biological; each method is associated with varying levels of pain (Table 1). The choice of debridement method must take into account the urgency and the healing potential. Pain is often most intense with sharp debridement unless the wound is associated with neuropathy. To reduce pain associated with surgical debridement, EMLA (Eutectic Mixture of Local Anaesthetics), containing lidocaine and prilocaine, has been used successfully in studies with patients with venous leg ulcers.<sup>42</sup>

Saline wet-to-dry gauze dressing removes necrotic tissues that are adhered to the gauze material and may promote

mechanical debridement. Although this debridement method uses inexpensive materials it is traumatic and painful. This technique should be abandoned as it is no longer recommended by any guidelines.<sup>43</sup> Alternatively, clinicians should consider the less traumatic autolytic debridement method by applying moist interactive dressings, such as hydrogels, alginates, Hydrofibre™ hydrocolloids and foam dressings (preferably with soft silicone “atraumatic”<sup>44</sup> adhesive technology) that are less painful upon removal.<sup>45, 46</sup>

Enzymatic debridement utilises proteolytic enzymes such as collagenase, papain urea, and others.<sup>47,48,49</sup> A burning sensation has been reported with the use of enzymatic agents and there may be a risk of infection. Biological debridement, inoculating larvae into the wound base, can also be employed to remove necrotic tissue. This method of debridement is also associated with a variable amount of pain (Table 1).<sup>50,51</sup>

Debridement Technique	Possible pain experienced	Techniques to minimize pain
Autolytic (e.g. hydrogel)	Burning	Change to a different hydrogel base
Enzymatic	Burning	Stop – switch to another technique
Larvae	Itching; burning; throbbing	Remove, wash, switch to another technique
Mechanical	Itching	Medicate (oral, topical), distraction therapy
Sharp (scalpel/scissors)	Sharp, tender and throbbing	Medicate
Wet-to-dry	Searing	Avoid this method

**Table 1** Examples of potential pain during debridement

## 5 Choose dressings that minimise trauma/pain during application and removal

Several factors contribute to painful dressing removal, including dried out dressing materials, aggressive adhesives, and crusted wound exudate. Repeated application and removal of dressings with traditional adhesives<sup>52,53</sup> creates trauma on the skin surface, leading to stripping of the skin barrier.<sup>46</sup> In severe cases, erythema, oedema and blistering have been observed (contact irritant and allergic dermatitis). It has been consistently demonstrated that patients

experience more pain with gauze dressings than with any type of advanced moisture balanced dressing.<sup>54,55,56,57,58</sup> The soft silicone adhesive technology dressings (e.g. Safetac®) have been studied and documented to be less painful before, during and after dressing change when compared to other advanced dressings with traditional adhesives.<sup>52,59</sup> Different types of dressing adhesives and their potential to cause or minimise pain are described in Table 2.

Dressing Adhesives	Application	Removal
<b>Acrylates/Polyurethanes</b>	<ul style="list-style-type: none"> <li>• Strong adhesion to skin (force increases with time)</li> <li>• Can cause allergies (contact allergic dermatitis)</li> </ul>	<ul style="list-style-type: none"> <li>• May cause a high incidence of pain and trauma (skin stripping)</li> <li>• Tip: use liquid film forming barrier on peri-wound skin</li> <li>• Can leave residues on the skin</li> </ul>
<b>Hydrocolloid adhesives</b>	<ul style="list-style-type: none"> <li>• Need to be moulded to skin surface (local warmth to promote adhesion)</li> <li>• Contact allergic dermatitis possible especially Pentalyn H</li> <li>• Edges may roll</li> <li>• Adhesive may dissolve in the presence of wound exudate</li> </ul>	<ul style="list-style-type: none"> <li>• May leave variable residue on skin and in the wound</li> <li>• May be associated with maceration and skin stripping</li> <li>• May cause a high incidence of pain and trauma (skin stripping)</li> </ul>
<b>Soft silicone adhesives</b> (wound contact layers, foams)	<ul style="list-style-type: none"> <li>• Good adhesion without strong bonding</li> <li>• Instant tack (sticks immediately to the skin)</li> </ul>	<ul style="list-style-type: none"> <li>• Minimal trauma and pain at dressing changes</li> <li>• Easy to check wound and re-apply</li> </ul>
<b>Non-adhesive alternatives</b> (e.g. gauze, Hydrofiber,™ calcium alginates, non-adherent foams, pastes)	<ul style="list-style-type: none"> <li>• May be difficult to fix to the skin</li> <li>• Susceptible to local friction and shear</li> <li>• Selection dependent on wound surface exudate level</li> </ul>	<ul style="list-style-type: none"> <li>• May cause local trauma, maceration or drying if moisture balance is not maintained</li> </ul>

**Table 2** Examples of dressing types and their role in pain during dressing related procedures

## 6a Treat infections that may cause wound-related pain and inhibit healing

The diagnosis of wound infection is based on clinical assessment. Pain is one of the most common symptoms associated with wound infection.<sup>60,61</sup> Cutting and Harding originally proposed the criteria for the diagnosis of infection in chronic wounds.<sup>62</sup> Sibbald et al. created the mnemonic NERDS and STONEES to conceptualise the difference

between superficial bacterial damage versus deep and surrounding skin infection in chronic wounds<sup>63</sup> (Table 3).

**Note:** Care is required when using topical pain relieving treatments that may mask pain related to infection and potential misidentification.

Bacterial Relationship	Pain	Clinical Characteristics
Colonisation	Not usually present/Related to bacterial damage	Healthy granulation
Local infection (critical colonisation, increased bacterial burden, covert infection)	May be painful	<b>NERDS</b> Non-healing Exudate (increased) Red friable granulation tissue Debris Smell
Deep and surrounding skin infection	Increased pain most reliable symptom and may be clinically more useful than any one individual sign	<b>STONEES</b> Size increasing Temperature increased (surrounding skin) Os (probes or exposed bone) New areas of breakdown Erythema /or Edema Exudate (increased) Smell

**Table 3** Wound pain as a result of infection. If any three criteria for NERDS and STONEES are present this is reliable for the association with bacterial damage.<sup>63</sup>

## 6b Treat local factors that may induce wound-related pain (e.g. inflammation, trauma, pressure, maceration)

Pain is induced by many local wound factors including wound-related inflammation (Table 4). Inflammatory cells and their mediators in wound exudate can break down newly formed tissue and irritate the peri-wound skin.<sup>64</sup> Although the exact mechanism is not known, inflammation may be related to the primary wound cause, increased superficial

bacterial burden or deep/surrounding skin infection, and recurring trauma. Wound-related pain may be minimised by avoiding factors that may prolong inflammation. Clinicians should review the previous discussions on treating the cause, selecting appropriate dressings and debridement methods to determine the least traumatic approach.

Type of Injury	Pathophysiology of Pain	Treatment Options
<b>Inflammation</b>	↑MMPs; Tissue damage; Immune complex deposition; Bradykinin and related substance activation	Topical and systemic anti-inflammatory
<b>Trauma</b> (including friction, shear)	Activated inflammatory mediators and tissue injury associated with nerve damage	Protect exposed nerve fibres (e.g. moist wound healing dressings)
<b>Pressure</b>	Ischemic injury with tissue damage and nerve fibre irritation, reperfusion injury	Pressure redistribution
<b>Oedema</b> (venous, lymphatic, Congestive Heart Failure [CHF], ↓Albumin)	↑Local interstitial pressure leading to tissue injury (impaired nutrient exchange: accumulation of waste products)	Venous, Lymphatic: compression, mechanical pumps CHF, ↓Albumin: Treat the cause

**Table 4** Wound pain mechanisms and treatment options

## 7 Select an appropriate dressing to minimise wound-related pain based on wear time, moisture balance, healing potential and peri-wound maceration

In the early work by Winter,<sup>65</sup> it was demonstrated that acute wound healing can be accelerated by maintaining the moist wound environment under occlusive dressings. Currently there are many types of dressings available with varying fluid handling (absorption, donation and partial retention) capacities to maintain the right balance of wound moisture.

Advanced foam dressings wick up and may partially lock in wound fluid and they are generally indicated in highly exudative wounds. However, foam dressings do not conform to wounds with depth; alginates and Hydrofiber™ are alternatives that could also handle high volumes of fluid.

For dry/desiccated wounds, hydrogels or moisture retentive dressings should be applied.

Where drainage volume exceeds the fluid handling capacity of the dressing, exudate can spill over to wound margins causing maceration and potential pain.<sup>64</sup> As a general rule, wear time should be calculated according to the exudate level to avoid maceration or other complications. Soft silicone dressings (e.g. Safetac® technology) and to some extent other adhesive dressings have an ability to seal the wound margins, minimising leakage and maceration.

## 8 Evaluate each patient's need for pharmacological (topical/systemic agents) and non-pharmacological strategies to minimise wound-related pain

The World Health Organization (WHO)<sup>66</sup> provides a step-wise approach to nociceptive pain (**GATT** = **G**nawing, **A**ching, **T**hrobbing, **T**ender) management starting from non-opiates such as acetylsalicylic acid, acetaminophen, or non-steroidal anti-inflammatory agents (NSAIDs) for the treatment of mild pain. As pain becomes more severe, clinicians need to consider the use of weak opiates such as codeine for moderate pain and stronger opiates (morphine, oxycodone)<sup>67,68</sup> for severe pain (Figure 2).

Adjuvant therapies such as antidepressants and anti-convulsants may be indicated for neuropathic pain (**BSSS** = **B**urning, **S**tinging, **S**hooting, **S**tabbing). To minimise systemic side-effects, topical use of anti-inflammatory agents has demonstrated some promising results.<sup>69,70</sup>

The multi-factorial nature and complexity of pain necessitates the use of other non-pharmacological approaches to address pain. These techniques may include the use of: relaxation, music,<sup>71,72,73,74</sup> touch<sup>75</sup> visual stimulation,<sup>76</sup> hypnosis, stress reduction strategies,<sup>77</sup> guided imageries,<sup>78</sup> behaviour and cognitive therapy, along with distraction.<sup>74</sup> Simply talking to the patient and engaging in the patient's life can be as useful as a "non-pharmacological strategy" – Listening and connecting – building a trusting relationship is essential.<sup>79,80</sup>

Physical modalities such as electrical nerve stimulation, acupuncture, laser therapy and thermal therapy have also demonstrated promising results in the management of wound pain.<sup>81</sup>

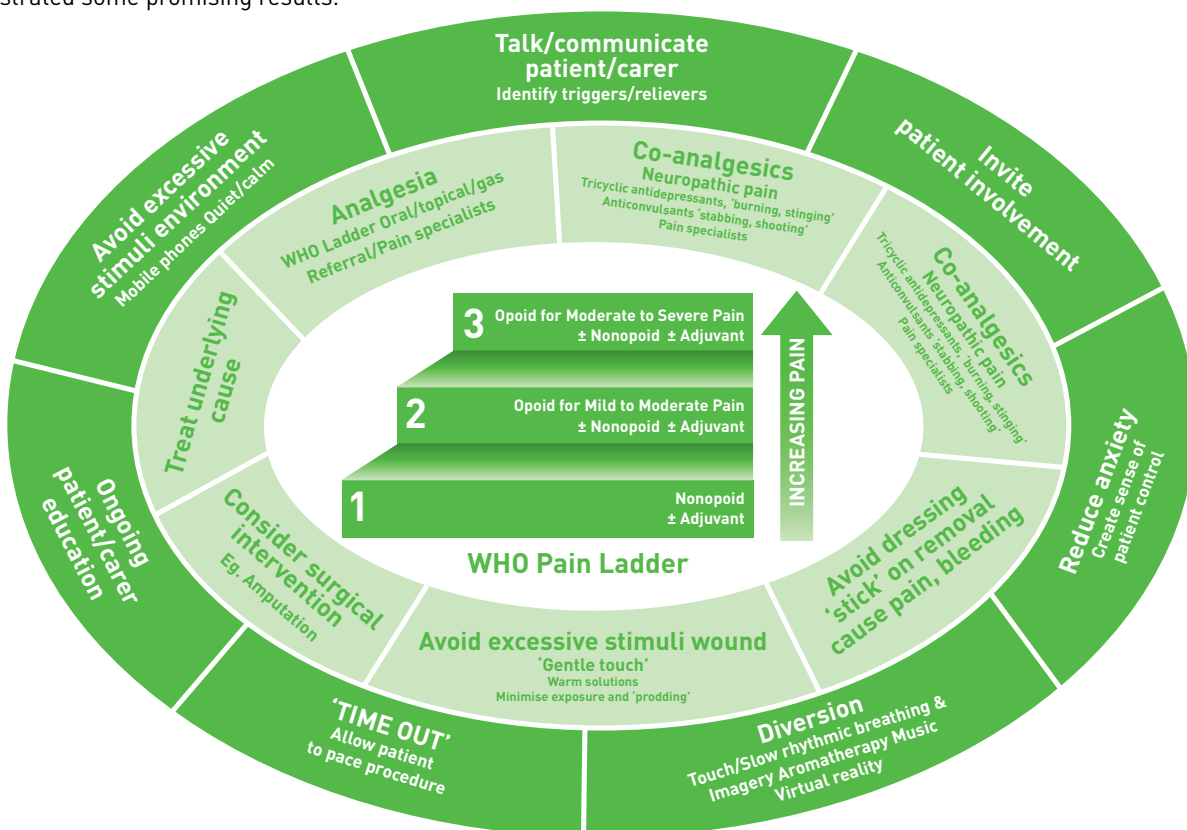


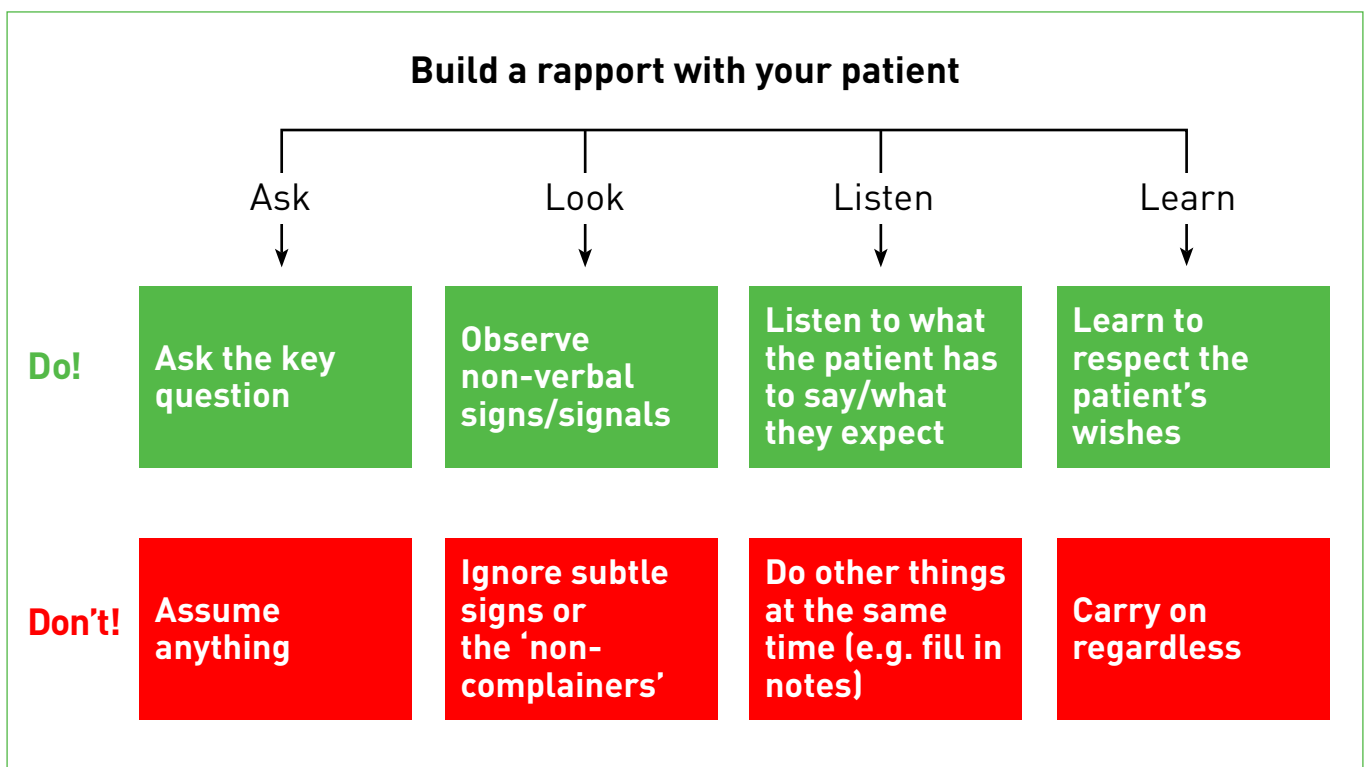
Figure 2 Pharmacological and non-pharmacological strategies to minimise wound-related pain (modified WHO ladder<sup>66</sup>)

## 9 Involve and empower patients to optimise pain management

Many patients with chronic wounds describe feelings of depression, powerlessness, and social isolation. It was demonstrated that patients with venous leg ulcers, who attended a social leg club were more adherent rather than compliant to treatment and experienced less wound-related pain.<sup>82</sup> Patients may be able to cope with pain if they feel empowered by sharing their experiences with fellow patients and other healthcare providers (Figure 3). Similarly, pain can be improved by building therapeutic relationships, providing better communication and education.<sup>83</sup>

As part of a large scale international survey,<sup>16</sup> 2018 patients were asked to rate the different stages of the dressing change

procedure, using a 1-5 scale (1 = no pain, 5 = very painful). If the symptoms are ordered by their mean scores, the order of the symptoms in terms of pain during dressing change is: touching/handling the wound, cleansing, dressing removal, time after application of new dressing, and time waiting for dressing change. Patients were also asked to describe the extent to which they agreed with four statements on dressing change pain and living with long-term use of pain medication: 80.1% of patients responded that they liked to be actively involved in their dressing changes, 58.1% responded that they were concerned about the long term side-effects of medication, and 40.3% of patients indicated that the pain at dressing change was the worst part of living with a wound.



**Figure 3** Patient and caregiver relationship



## 10 Healthcare providers should ensure wound-related pain control for every patient

There have been several initiatives on standardised pain assessment that started with the first World Union pain consensus document<sup>1</sup>

For example the work done by Hollinworth<sup>36</sup> that was presented in 2005 and the pilot work by Lindholm<sup>39</sup> leading the way in recent years. In the United Kingdom in 2006 Mölnlycke Health Care Ltd, developed and launched a program to aid the implementation of the existing pain guidelines<sup>1,18</sup> by providing the practitioner with a framework to document and guide care.<sup>84</sup> This program, called Heal Not Hurt, has been piloted with excellent feedback from clinicians,<sup>85</sup> demonstrating a change in practice that has improved the assessment, management and documentation of wound-related pain.

Wound-related pain is an issue for many patients with wounds<sup>86</sup> and therefore there is a real need for healthcare professionals to implement pain assessment (Table 5) preferably using a standardised pain assessment tool. Just as cleansing, assessing, tracing/measuring and routine photography have become standard practice and documentation within wound care in some constituencies, the assessment, monitoring and evaluation of wound-related pain should become a part of everyday practice at every dressing-related procedure.

In order to facilitate this, a simplified pain assessment tool has been developed and is found in the centre of this document or if missing can be downloaded from [www.wuwhs.org](http://www.wuwhs.org) or [www.molnlycke.com](http://www.molnlycke.com).

### How to get started

- Have an **individual desire** to improve patients'/individuals' wound-related pain (WRP) experiences, in particular at the time of dressing related procedures
- **Commit to change** in practice so that through assessment, we can better understand, monitor, manage and improve the patients' lived experience
- **Accept the obligation and responsibility** of ALL HEALTHCARE PROFESSIONALS to relieve suffering
  - WRP can be the main patient concern when living with a chronic wound (e.g. leg ulcer)
  - WRP is associated with reduction in quality of life for the patient
  - WRP is associated with sometimes unbearable suffering
- Make WRP assessment a **part of everyday clinical practice**
- To better understand we need to **ASK, REPORT and ACT** to the patient's individual and unique story
- The information from the assessment will thus serve as a **basic guide to optimal pain relieving actions**, either as systemic or local treatments or combinations of these
- **Monitor the impact** of procedures and interventions
- **Work as a team** to address and minimise WRP and address unique individual needs and concerns
- **Keep patient focal** and central to process
- **ACT!!**
  - Identify the responsible persons at your clinical setting that decide on the design of patient records and follow up systems
  - If possible, get agreement by these colleagues to implement pain assessment in the regular assessment procedure
  - Add into patient records

**Table 5** Implementation process

## CONCLUSIONS AND SUMMARY

One of the most important parts of any evidence based initiative is its implementation into practice. This document provides the background, evidence and more importantly TOOLS to help with the implementation of the assessment, documentation and treatment of wound-related pain. Healthcare professionals have the responsibility to understand,

assess, manage and evaluate wound-related pain for both the patient and the wounds perspective. When one achieves a REAL understanding of wound-related pain, this benefits both the wound and the patient including the management of dressing-related pain. Don't wait – ASK – REPORT – and more importantly ACT and IMPROVE (Figure 4).

Do healthcare professionals REALLY understand the patient's wound related pain (WRP) experience **at dressing change?**

### THIS IS OUR RESPONSIBILITY



**ASK** [assess/listen] : **REPORT** [communicate and document] : **ACT** [treat/monitor/evaluate] : **IMPROVE!**

Figure 4 Ask-Report-Act

## REFERENCES

- World Union of Wound Healing Societies. Principles of best practice. Minimising pain at wound dressing-related procedures. A consensus document. 2004. Published by Medical Education Partnership, London.
- Waltz CF, Strickland OL, Lenz ER. Delphi Technique. Designing Nursing Tools and Procedures. Second Edition. 1991.F.A. [Davis Company, Philadelphia]. pp338-55.
- Reddy M, Keast D, Fowler E, Sibbald RG. Pain in pressure ulcers. *Ostomy Wound Manage.* 2003; 49(4 suppl): 30-5.
- Ryan S, Eager C, Sibbald RG. Venous leg ulcer pain. *Ostomy Wound Manage.* 2003; 49(4suppl): 16-23.
- Queen D, Woo K, Schulz VN, Sibbald RG. Chronic wound pain and palliative cancer care. *Ostomy Wound Management.* 2005; 1(11A Suppl):9-11
- McCaffery M, Pasero C. *Pain Clinical Manual.* 2nd Edition. Mosby.
- Meaume S, Teot L, Lazareth I, Martini J, Bohbot S. The importance of pain reduction through dressing selection in routine wound management: the MAPP study. *Journal of Wound Care.* 2004; 13(10): 409-13.
- Szor JK, Bourguignon C. Description of pressure ulcer pain at rest and at dressing change. *J Wound Ostomy & Cont Nursing.* 1999; 26(3):115-20
- Dallam L, Smyth C, Jackson BS, Krinsky R, O'Dell C, Rooney J, Badillo C, Amella E, Ferrara L, Freeman K. Pressure ulcer pain: assessment and quantification. *Journal of Wound, Ostomy, & Continence Nursing.* 1995; 22(5): 211-5.
- Nemeth KA, Harrison MB, Graham ID, Burke S. Understanding venous leg ulcer pain: results of a longitudinal study. *Ostomy Wound Manage.* 2004; 50(1): 34-36.
- Persoon A, Heinen MM, van der Vleuten CJ, et al. Leg ulcers: a review of their impact on daily life. *Journal of Clinical Nursing.* 2004; 13(3): 341-54.
- Hofman D, Lindholm C, Arnold F, Bjellerup M, Cherry G, Ryan T. Pain in venous leg ulcers. *J Wound Care* 1997;2:222-224
- Kappesser J, Williams AC, Prkachin KM. Testing two accounts of pain underestimation. *Pain.* 2006; 24(1-2):109-16.
- Prkachin KM, Solomon PE, Ross J. Underestimation of pain by health-care providers: towards a model of the process of inferring pain in others. *Canadian Journal of Nursing Research.* 2007; 39(2):88-106.
- Krasner D. Painful venous ulcers: themes and stories about living with the pain and suffering. *J WOCN.* 1998; 25(3): 158-9, 161-8
- Price PE et al. Findings of an International Pain Survey, Submitted to International Wound Journal 2008.
- Adriaenssen H., Vissers K., Noorduyn H., Meert T., Opioid tolerance and dependence: an inevitable consequence of chronic treatment? *Acta Anaesthesiologica Belgica.* 2003; 54(1): 37.
- European Wound Management Association. Position Document, Pain at wound dressing changes. 2002. Published by Medical Education Partnership, London
- International association study in pain task force on taxonomy (IASP 1994) [www.iasp-pain.org](http://www.iasp-pain.org)
- [http://www.mao.org/Storage/15/933\\_BPG\\_CCCare\\_Supplement.pdf](http://www.mao.org/Storage/15/933_BPG_CCCare_Supplement.pdf)
- Soon K, Acton C. Pain-induced stress: a barrier to wound healing. *Wounds UK J.* 2006; 2(4) [online]
- De Wikie, Nociceptive and Neuropathic Pain in Patients With Lung Cancer A Comparison of Pain Quality Descriptors. *Journal of Pain and Symptom Management*, Volume 22, Issue 5, Pages 899-910
- Moffatt CJ, Franks PJ, Hollinworth H. Understanding wound pain and trauma: an international perspective. EWMA Position Document: Pain at wound dressing changes. 2002; 2-7
- Walshe C. Living with a venous leg ulcer: a descriptive study of patient's experiences. *Journal of Advanced Nursing.* 1995; 22(6): 1092-1100.
- Twycross R. Pain Relief in Advanced Cancer. 1994, Churchill Livingstone: London, pp. 240, 288, 325, 353, 409-16
- Harms-Ringdahl K, Carlsson AM, Ekholm J, et al. Pain assessment with different intensity scales in response to loading of joint structures. *Pain.* 1986; 27: 401-11.
- Keck JF, Gerkenmeyer JE, Joyce BA, et al. Reliability and validity of the Faces and Word Descriptor Scales to measure procedural pain. *Journal of Paediatric Nursing.* 1996; 11(6): 368-74.
- Woo K. Pain in older persons with cognitive impairment. *Perspectives.* 2002; 6(2): 4-9
- Baker A, Bowring L, Brignell A, Kafford D. Chronic pain management in cognitively impaired patients: a preliminary research project. *Perspectives.* 1996; 20(2):4-8.
- Feldt KS, Oh HL. Pain and hip fracture outcomes for older adults. *Orthopaedic Nursing.* 2000; 19(6): 35-44.
- Feldt KS. The checklist of nonverbal pain indicators [CNPI]. *Pain Management Nursing.* 2000; 1(1):13-21.
- Hurley AC, Volicer BJ, Hanrahan PA, Houde S, Volicer L. Assessment of discomfort in advanced Alzheimer patients. *Research in Nursing & Health.* 1992; 15(5): 369-77.
- Kovach CR, Griffie J, Muchka S, Noonan P.E, Weissman DE. Nurses' perceptions of pain assessment and treatment in the cognitively impaired elderly. It's not a guessing game. *Clinical Nurse Specialist.* 2000; 14(5): 215-20
- Simons W, Malabar R. Assessing pain in elderly patients who cannot respond verbally. *Journal of Advanced Nursing.* 1995; 22(4): 663-9.
- Kammertander G, Eberlein T. Nurses' views about pain and trauma at dressing changes: a central European perspective. *Journal of Wound Care.* 2002; 11(2): 76-9.
- Hollinworth, Helen. [2005]. Pain at wound dressing-related procedures: a template for assessment. <http://www.worldwidewounds.com/2005/august/Hollinworth/Framework-Assessing-Pain-Wound-Dressing-Related.html>
- Moffatt C. Leg ulceration: complex case scenario. *World Wide Wounds.* 2002 Feb; 4p.
- Ernst AA, Gershoff L, Miller P, Tilden E, Weiss SJ. Warmmed versus room temperature saline for laceration irrigation: a randomized clinical trial. *Southern Medical Journal.* 2003; 96(5):436-9.
- Lindholm C. Oral presentation at European Wound Management Association [EWMA] meeting, Glasgow, Scotland, May 2007.
- Moore ZE, Cowman S. Wound cleansing for pressure ulcers. *Cochrane Database Syst Rev.* 2005 Oct 19;(4):CD004983
- Naylor W. Assessment and management of pain in fungating wounds. *British Journal of Nursing.* 2001;(suppl):10(22)
- Briggs M, Nelson EA. Topical agents or dressings for pain in venous leg ulcers. [Update of Cochrane Database of Syst. Rev. 2000;(2) CD001177; PMID: 10796614]. *Cochrane Database Of Systematic Reviews.* 2003; (1): CD001177
- London: NICE; 2002. National Institute for Clinical Excellence [Compilation].
- <http://www.worldwidewounds.com/2003/january/Thomas/Atraumatic-Dressings.html>
- Smith J. Debridement of diabetic foot ulcers. *The Cochrane Database of Systematic Reviews.* 2007; 2
- Dykes PJ, Heggie R, Hill SA. Effects of adhesive dressings on the stratum corneum of the skin. *Journal of Wound Care.* 2001; 10(2): 7-10.
- Klasen HJ. A review on the non operative removal of necrotic tissue from burn wounds. *Burns.* 2006; 26(3):207-22.
- Bott R, Crissman J, Kollar C, Saldajeno M, Ganshaw G, Thomas X, Lane TH, Klykken P, Davidson JM, Nanney LB. A silicone-based controlled-release device for accelerated proteolytic debridement of wounds. *Wound Repair & Regeneration.* 2007; 15(2): 227-35.
- Falabella AF. Debridement and wound bed preparation. *Dermatologic Therapy.* 2006; 19(6):317-25.
- Steenvoorde P, Budding T, Oskam J. Determining pain levels in patients treated with maggot debridement therapy. [erratum appears in *J Wound Care.* 2006 Feb;15(2):71]. *Journal of Wound Care.* 2005; 14(10):485-8.
- Kitching M. Patients' perceptions and experiences of larval therapy. *Journal of Wound Care.* 2004; 13(1): 25-9.
- Dykes PJ, Heggie R. The link between the peel force of adhesive dressings and subjective discomfort in volunteer subjects. *Journal of Wound Care* 2003; 12(7): 260-2.
- Zillmer R, Ågren M S, Gottrup F, Karlsmark T. Biophysical effects of repetitive removal of adhesive dressings on peri-ulcer skin. *Wound Care.* 2006 May ;15 (5):187-91
- Vermeulen H, Ubbink DT, de Zwart F, Goosens A. Preference of patients, doctors and nurses regarding wound dressing characteristics: a conjoint analysis. *Wound Rep Reg.* 2007; 15: 302 - 307.
- Meyer LJM. Randomized comparative study of Cutinova cavity dressing for the treatment of secondary healing wounds after abdominal surgery and abscess cavities in comparison with traditional therapy. *The Cochrane Central Register of Controlled Trials.* In: *The Cochrane Library*, 2003; Issue 1. John Wiley: Chichester.
- Cannavo M, Fairbrother G, Owen D, Ingle J, Lumley TA. Comparison of dressings in the management of surgical abdominal wounds. *J Wound Care.* 1998; 7: 57-62.
- Guillotreau J, Andre J, Falndrin P, Moncade F, Duverger V, Rouffi F et al. Calcium alginate and povidone iodine packs in the management of infected postoperative wounds; results of a randomized study. *Br J Surg.* 1996; 83: 861
- Viciano V, Castera JF, Medrano J, Aguilo J, Torro J, Botella MG et al. Effect of hydrocolloid dressings on healing by second intention after excision of pilonidal sinus. *Eur J. Surg.* 2000; 166; 229-232.
- White R et al. Pain on dressing removal assessment: a multinational survey. Ref #: Unr 1028 604/ALL. Poster presented at Wounds UK, Harrogate 2007.
- Tengvall, W, Yvonne, B. Viveca. Differences in pain patterns for infected and non-infected burn patients. *Burns*, Volume 33, Issue 1, Pages S111-S111 O
- Reddy M, Kohr R, Queen D, Keast D, Sibbald RG. Practical treatment of wound pain and trauma: a patient-centered approach. An overview. *Ostomy Wound Manage.* 2003;49(Suppl 4A):2-15.
- Cutting KF, Harding KG. Criteria for identifying wound infection. *J Wound Care* 1994;3:198-201.
- Sibbald RG, Woo K, Ayello EA. Increased bacterial burden and infection: the story of NERDS and STONEES. *Adv Skin Wound Care.* 2006; 19: 447-61.
- Cutting KF, White R. Defined and refined: criteria for identifying wound infection revisited. *Br J Community Nurs.* 2004; 9(3): s6-s15.
- Winter GD. Formation of the scab and the rate of epithelization of superficial wounds in the skin of the young domestic pig. *Nature.* 1962; 193:293-4.
- World Health Organisation (WHO). Who's pain ladder. 2005; [www.who.int/cancer/palliative/painladder/en/](http://www.who.int/cancer/palliative/painladder/en/)
- Zeppetella G, Paul J, Ribeiro MD. Analgesic efficacy of morphine applied topically to painful ulcers. *Journal of Pain & Symptom Management.* 2003; 25(6):555-8
- Flock P. Pilot study to determine the effectiveness of diamorphine gel to control pressure ulcer pain. *Journal of Pain & Symptom Management.* 2003; 25(6): 547-54.
- Sibbald RG, Coutts P, Fierheller M, Woo K. A pilot (real-life) randomised clinical evaluation of a pain-relieving foam dressing: (ibuprofen-foam versus local best practice). *International Wound Journal.* 2007; 4 (Suppl 1):16-23
- Gottrup F, Jorgensen B, Karlsmark T, Sibbald RG, Rimdeika R, Harding K, Price P, Venning V, Vowden P, Junger M, Wortmann S, Sulcaite R, Vilkevicius G, Ahokas TL, Ettler K, Arenbergerova M. Less pain with Biatain-lbu: initial findings from a randomised, controlled, double-blind clinical investigation on painful venous leg ulcers. *International Wound Journal.* 2007; 4 (Suppl 1):24-34, 2007
- Richards T, Johnson J, Sparks A, Emerson H. The effect of music therapy on patients' perception and manifestation of pain, anxiety and patient satisfaction. *Med Surg Nurs.* 2007; 16(1): 7-14.
- Ferguson SL, Voll KY. Burn pain and anxiety: the use of music relaxation during rehabilitation. *J Burn Care Rehabil.* 2004; 25(1): 8-14.
- Whitehead-Pleaux AM, Baryza MJ, Sheridan RL. The effects of music therapy on paediatric patient's pain and anxiety during donor site dressing change. *J Music Ther.* 2006; 43(2): 136-53.
- Kwekkeboom KL. Music versus distraction for procedural pain and anxiety in patients with cancer. *Oncol Nurs Forum.* 2003; 30(3): 433-40.
- Turner JG, Clark AJ, Gauthier DK, Williams M. The effect of therapeutic touch on pain and anxiety in burn patients. *J Adv Nurs.* 1998; 28(1): 10-20.
- Tse MM, Ng JK. Visual stimulation as pain relief for Hong Kong Chinese patients with leg ulcers. *Cyberpsychology & Behaviour.* 2003; 6(3): 315-20.
- Frenay MC, Faymonville ME, Devlieger S, Albert A, Vanderkelen A. Psychological approaches during dressing changes of burned patients: a prospective randomized study comparing hypnosis against stress reducing strategy. *Burns.* 2001; 27(8): 793-9.
- Danhauer SC, Marler B, Rutherford CA, Lovato JF, Asbury DY, McQuellon RP, Miller BE. Music or guided imagery for women undergoing colposcopy: a randomized controlled study of effects on anxiety, perceived pain and patient satisfaction. *J Low Genit Tract Dis.* 2007; 11(1): 39-45.
- Rich A, McLachlan L. How living with a leg ulcer affects people's daily life: a nurse-led study. *J Wound Care.* 2003;12(2):51-54
- Ebbeskog B, Ekman SL. Elderly people's experiences. The meaning of living with venous leg ulcer. *J EWMA.* 2001;1(1):21-23
- Patricia Price. An Holistic Approach to Wound Pain in Patients With Chronic Wounds, *Wounds.* 2005;17(3):55-57
- Edwards H, Courtney M, Finlayson K, Lindsay E, Lewis C, Shuter P, Chang A. Chronic venous leg ulcers: effect of a community nursing intervention on pain and healing. *Nursing Standard.* 2005; 19(52): 47-54.
- Gibson MC, Keast D, Woodbury MG, Black J, Goettl L, Campbell K, O'Hara S, Houghton P, Borrie M. Educational intervention in the management of acute procedure-related wound pain: a pilot study. *Journal of Wound Care.* 2004; 13(5): 187-90.
- Young T. Assessment of wound pain: overview and a new initiative. *British Journal of Nursing.* 2007; 16(8): 456, 458, 460-1.
- Barrett S. 'Heal not hurt': piloting an initiative on wound pain assessment. *British Journal of Community Nursing.* 2007; 12(6): S18-21
- Lindholm C, Bjellerup M, Christensen O, Zederfeldt B. Quality of life in chronic leg ulcer patients. An assessment according to the Nottingham Health Profile. *Acta Derm Venereol (Stockholm)* 1993;73:440-443



## International Expert Working Group

**Dr Jan Apelqvist**, Clinic of Endocrinology, University Hospital MAS, Malmö, Sweden

**Professor Keith Harding**, Wound Healing Research Unit, School of Medicine, Cardiff University, Cardiff, UK

**Dr Diane Krasner**, Wound and Skin Care Consultant, York, PA, USA

**Professor Christina Lindholm**, Kristianstad University/Kristianstad General Hospital, Kristianstad, Sweden

**Dr Sylvie Meaume**, Hôpital Charles Foix, Ivry sur Seine, France

**Professor Christine Moffatt**, Faculty of Health and Human Sciences, London, UK

**Professor Patricia Price**, Wound Healing Research Unit, School of Medicine, Cardiff University, Cardiff, UK.

**Professor Marco Romanelli**, Department of Dermatology, University of Pisa, Italy

**Dr José Contreras Ruiz**, Clinica Interdisciplinaria de Cuidado de Heridas y Estomas, Tlalpan, Mexico

**Dr Thomas Serena**, Pennsylvania North Center for Advanced Wound Care, Warren, PA, USA

**Professor Gary Sibbald**, University of Toronto, Canada

**Wendy White**, Nurse Consultant/Educator, Australia

**Professor Richard White**, University of Worcester, UK

## Expert Writing Panel

**Dr Douglas Queen**, Scientist, Women's College Hospital, Toronto, Canada

**Kevin Woo**, Clinical Scientist/Wound Care specialist, Women's College Hospital, Toronto, Canada

## Expert Review Panel (via electronic survey)

Simon Barrett, UK

Tabatha Rando, Australia

Laura-Jane Lunau, Germany

Susan Bermark, Denmark

Justo Rueda, Spain

Menna Lloyd Jones, UK

Catherine Buergi, Switzerland

Diane St-Cyr, Canada

Deiter Mayer, Switzerland

Karen Campbell, Canada

Jackie Stephen-Haynes, UK

Clare Morris, UK

Pat Coutts, Canada

Geert Vanwalleghem, Belgium

Britta Østergaard, Denmark

Ramón Delgado, Spain

Else Godsk Vestergaard, Denmark

Yolanda Peter, Switzerland

Riccardo Gabriolo, Italy

Val Winberg, Canada

Tiina Pukki, Finland

Mirella Fullone, Italy

David Bergstrom, Switzerland

Eric Roovers, Belgium

David Keast, Canada

Tommaso Bianchi, Italy

Pamela Savage, Canada

Jan Marie Morgan, Canada

Runbjørg Buner, Norway

Helle Sørensen, Denmark

Deb Mings, Canada

Matteo Costa, Italy

Laura Teague, Canada

Anette Norden, Denmark

Juan M. Cuñarro, Spain

Kathy Vowden, UK

Fania Pagnamenta, UK

Julie Evans, UK

Sally Warmington, Australia

Sebastian Probst, Switzerland

Mary Harrison, UK

Trudie Young, UK



## WORLD UNION OF WOUND HEALING SOCIETIES

Secretariat: MF Congrès, 8 rue Tronchet, 75008 Paris, France  
Tel: 00 33 1 40 07 11 21 Fax: 00 33 1 40 07 10 94 Web: [www.wuwhs.org](http://www.wuwhs.org)

### Supported by an educational grant from Mölnlycke Health Care

The views expressed in this document do not necessarily reflect those of Mölnlycke Health Care

**How to cite this document:** Principles of best practice: Minimising pain at wound dressing-related procedures.  
A consensus document. Toronto, Ontario, Canada: © WoundPedia Inc 2007.