



# 6 STRATEGIES FOR MINIMIZING WOUND PAIN:

TRANSLATING THE RESULTS FROM A US  
PAIN SURVEY INTO CLINICAL PRACTICE

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**W**ound pain continues to be one of the top concerns of people with wounds.<sup>1-4</sup> Although evidence indicates that wound pain has a profound effect on a person's life and is one of the most devastating aspects of living with a wound, research has shown that clinicians are often complacent or unwilling to accept the degree of patient suffering from wound-related pain.<sup>5</sup> In an effort to enhance patient-centered care, several international documents that address the issues of wound trauma and pain have been published.<sup>5,6,7</sup> The latest best-practice guideline, "Minimizing pain at dressing-related procedures: Implementation of pain relieving strategies," will be released at the World Union of Wound Healing Societies (WUWHS) meeting in June 2008 in Toronto, Canada.<sup>8</sup>

### THE SURVEY

To better understand the experience of patients who suffer trauma and undergo pain at the time of dressing changes, a one-page multinational survey, "Pain on Dressing Removal Assessment," was conducted by Mölnlycke Health Care (Gothenburg, Sweden) among 20 countries from December 2006 to April 2007. A total of 3,034 surveys were collected and analyzed. Data analysis was performed by Intermetra Business and Market Research Group (Gothenburg, Sweden) using paired t-tests. In the US, participation was facilitated by Mölnlycke's clinical specialist team members who distributed and collected the US surveys. The 260 completed and analyzed surveys form the basis for this report. IRB approval was not required; rather, patient willingness to participate in the survey implied consent.

### THE SURVEY DESIGN

Clinicians used the survey to evaluate the patient's pain experience using different dressings at two consecutive dressing changes. Demographic data collected included gender, age, wound type, type of dressing used (primary and secondary), evidence of wound and/or peri-wound trauma (evaluated by a qualitative assessment carried out by the clinician

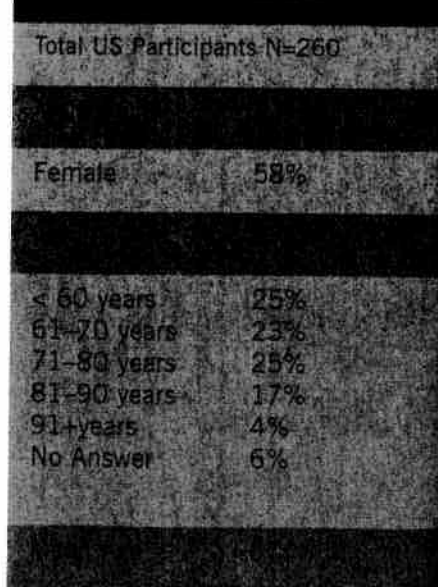
caring for the patient), and pain scores. Pain scores were evaluated three times (before, during, and after dressing removal) at each dressing change by the patient's own report using a 0-10 visual analogue scale (VAS).

The first dressing change included evaluation of the patient's pain experience utilizing a traditional adhesive dressing. Traditional adhesive dressings feature a polyurethane, acrylic, or hydrocolloid-based adhesive and include adhesive foams, films, hydrocolloids, composite dressings, or surgical dressings. Patients with multiple wound types for which traditional adhesive dressings were utilized were recruited for the survey. Patients with wounds suspected to be infected had to be excluded from the survey because infection can compound the pain experience.

After evaluating the first dressing change, a soft silicone (Safetac®) adhesive foam dressing (Mepilex®, Mepilex® Lite, Mepilex® Border or Mepilex® Border Lite; Mölnlycke Health Care, Gothenburg, Sweden), appropriate for the wound, was applied. At the second dressing change, pain scores were assessed in an identical manner to the first visit and the following questions were considered by either the clinician or the patient:

- Is there any wound/periwound trauma? (clinician)  
(no-very slight-moderate-high)
- How easy was it to use the VAS to assess pain? (clinician)  
(very easy-easy-difficult-very difficult)
- Which of the two dressings used would you prefer to continue to use? (patient)

**FIGURE 1. PATIENT AGE AND GENDER**



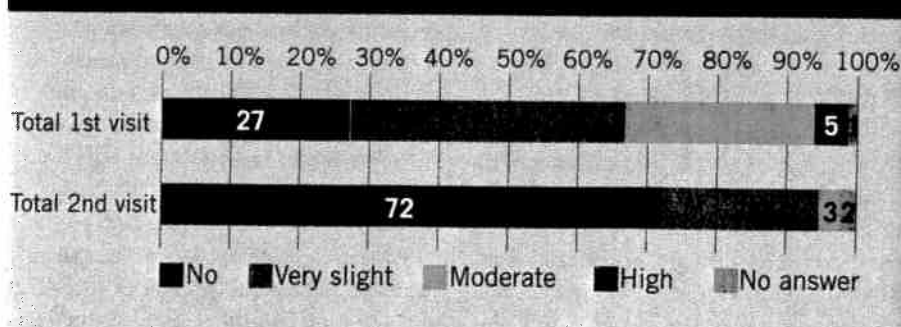
(previously used dressing -new dressing)

Trauma and pain levels examined at the second visit were compared with those obtained at the first visit using paired t-tests.

### SURVEY RESULTS

Of the 3,034 patients participating internationally, 260 were surveyed in the US. Data relating to the age and gender of the survey population are presented in **Figure 1**. Patients presented with a variety of wound types including venous leg ulcers (or mixed) (14%); burns (3%); arterial leg ulcers (2%); skin tears (24%); pressure ulcers (37%); diabetic foot ulcers (7%) and others (14%).

**FIGURE 2. WOUND/PERIWOUND TRAUMA AT FIRST VISIT COMPARED TO SECOND VISIT**



# SIX STRATEGIES FOR MINIMIZING WOUND PAIN

FIGURE 3. MEAN SCORES AND SIGNIFICANCE

SIGNIFICANCE: * = 90 % ** = 95 % *** = 99 %	TOTAL (n=280)	MEPILEX (n=64)	MX BORDER (n=196)
BEFORE REMOVAL: Second visit	0.3	1.2	0.3
SIGNIFICANCE ("no" or **/***)			
AT REMOVAL: Second visit	1.1	1.3	1.1
SIGNIFICANCE ("no" or **/***)			
AFTER PROCEDURE: Second visit	0.3	1.2	0.3
SIGNIFICANCE ("no" or **/***)			

ated to be atraumatic. Only by measuring pain and by assessing the wound and periwound trauma for each patient with a wound can the efficacy of atraumatic dressings be accurately determined. The implications of these results have been translated for clinical practice into Six Strategies for Minimizing Wound Pain (see Table 1).

## SIX STRATEGIES FOR MINIMIZING WOUND PAIN

The insights from the US Pain Survey described above inspired the authors to translate the results into practical strategies for everyday clinical practice. The following six strategies are meant to offer solutions to the concerns identified through the US Pain Survey in a practical way that informs and supports best clinical practice.

### STRATEGY 1:

**Measure pain scores before, during, and after dressing changes when possible to appreciate the person's response to the total wound pain experience.**

The survey, wound pain literature and clinical expertise all demonstrate that the worst wound pain is experienced at dressing changes; significant differences in wound pain are noted before, during, and after dressing change. In an ideal world, pain scores should be obtained three times and compared. These data offer direction regarding the most effective strategies to reduce an individual's pain. For example, if the maximum pain is experienced before dressing change and further assessment reveals that the wound pain is exacerbated by procedural anxiety, an anti-anxiety medication given before the procedure can be provided. Alternatively, if procedural pain is minimized, pre-procedure anxiety may be reduced or eliminated. Topical anesthetics may help to reduce procedural pain and should be applied in a timely manner to allow for adequate analgesic effect. If further assessment shows that burning, stinging pain (neuropathic pain) continues after each dressing change, a pain medication that targets

## EVALUATION OF TRAUMA

Data related to wound and periwound trauma at the first visit compared to the second visit are presented in Figure 2. A majority of the participants (71%) experienced high, moderate, or slight wound/periwound trauma at their first visit; 72% of participants experienced no wound/periwound trauma at the second visit when soft silicone dressings were utilized.

## EVALUATION OF PAIN

Data related to pain are presented in Figure 3. Statistically significant differences in pain scores before removal, during removal, and after the procedure were noted between the first and second visits ( $p = .001$ ). Lower pain scores were reported after the second visit when soft sili-

cone adhesive dressings were utilized—90% of the participants indicated they preferred the soft silicone foam dressings to their previous dressing regimen.

When compared to the results from the total, multinational study, the US survey showed similar trends:

- Pain scores in the multinational study were significantly lower ( $p=0.01$ ) at the second visit when soft silicone adhesive dressings were used.
- Trauma scores were significantly lower ( $p=0.01$ ) at the second visit when soft silicone adhesive dressings were used.

## DISCUSSION OF SURVEY RESULTS

Trauma and pain can be significantly decreased by carefully evaluating dressings and selecting and using dressings appreci-

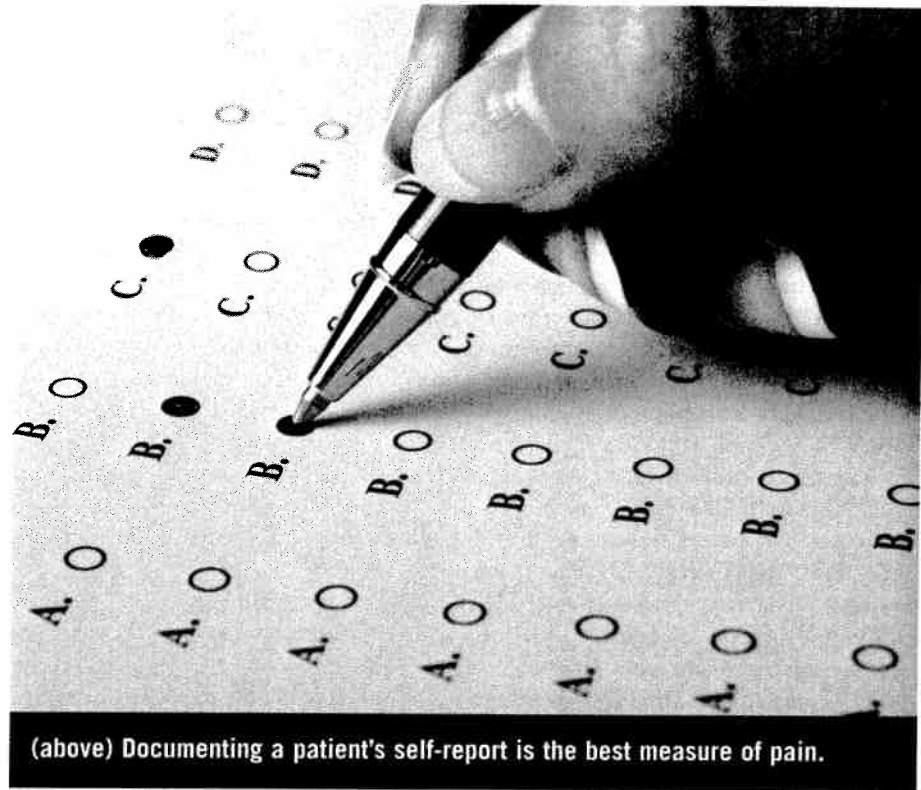
**TABLE 1. SIX STRATEGIES FOR MINIMIZING WOUND PAIN**

1. Measure pain scores before, during, and after dressing changes when possible to appreciate the person's response to the total wound pain experience.
2. Employ strategies to minimize pain:
  - Pain Medication
  - Time-outs
  - Imagery or Music
  - Diversion
  - Interactive Dialogue
  - Deep Breathing
  - Touch
3. Avoid dressings that cause trauma during wear time (eg, shear, movement, poor moisture management, pressure, local irritation).
4. Select dressings that are known to be atraumatic on dressing removal.
5. Solicit the person's comments and input on interventions and changes in dressing selection and the overall plan of care.
6. Establish dressing selection protocols based on the person's reactions and pain measurement data.

neuropathic pain (eg, gabapentin/neurontin) should be utilized.

The WUWHS recommends that wound-related pain should be assessed and its intensity rated before, during, and after dressing change procedures.<sup>6,7</sup> If pain is rated as moderate to severe (4 or greater on the 0-10 VAS), dressing procedures should be re-evaluated for appropriateness.<sup>6</sup>

Not all patients will be able to comprehend the VAS. Other valid and reliable tools for pain measurement are available; several have been shown to be valid and reliable in the elderly population and the non-verbal population and are discussed elsewhere.<sup>4</sup> It may not always be possible or practical to meas-



(above) Documenting a patient's self-report is the best measure of pain.

ure wound pain multiple times at one dressing change due to logistics or the realities of a particular setting/circumstance. Specific wound-related protocols should reflect and meet the unique needs and realities of the particular setting and related regulatory requirements.

**STRATEGY 2:  
Employ strategies to minimize pain.**

The survey results demonstrated that wearing and removing soft-silicone dressings is significantly related to reduced pain scores. Many other strategies that can reduce wound-related pain have been addressed in the literature and various pain documents. Sometimes it is necessary to utilize numerous strategies to adequately control an individual's pain.<sup>4</sup>

Effective management strategies for wound-related pain include the use of:

- **Pain medication:** Peak performance times vary among medications and individuals. Carefully assess effectiveness of analgesics or topical anesthetics and adjust dosage, or administration times as needed.

- **Time-outs:** The ability to ask for a *break* from the dressing change procedure may reduce pain and anxiety.
- **Imagery or music:** Both guided imagery and music therapy may assist the person in reducing procedure-related stress.
- **Diversion:** Engaging the person in activities or conversations that offer a *non-wound related* focus may offset stress and discomfort.
- **Interactive dialogue:** Offering the person opportunities to share personal stories or discuss current events may enhance the patient-caregiver relationship, fostering trust and reducing anxiety.
- **Deep breathing:** Deep breathing is a relaxation technique that can effectively reduce stress levels. Give the individual an opportunity to practice deep breathing before the dressing change or any procedure that may cause discomfort.
- **Touch:** The sharing of touch can convey, "I am here for you," "I care," and, "I understand." Meaningful messages can be shared through touch and assist people to relax.

# SIX STRATEGIES FOR MINIMIZING WOUND PAIN

## STRATEGY 3:

**Avoid dressings that cause wound trauma during wear time (eg, shear/movement, poor moisture management, pressure, local irritation).**

While it might seem like common sense to avoid dressings that cause trauma during wear time, gauze and adhesive dressings (notorious for causing trauma to the wound bed and the peri-wound margins) continue to be misused in many healthcare environments. The result is not only pain but re-injury of wounds, resulting in delayed healing times. More than 40 years ago, T. D. Turner published the ideal performance parameters for wound dressings<sup>9</sup> and today many products are available that have these characteristics.<sup>10</sup> Unfortunately, either due to indifference, ignorance, or short-sighted economics, non-adherent dressings and gentle or skin-friendly adhesives are often not used.

Dressings used for autolytic wound healing retain moisture and allow exposed nerve endings to be protected by moist, warm wound fluid, soothing and reducing pain. Choose dressings that sustain a moist environment while ensuring large amounts of wound fluid are managed. Excess wound fluid can cause pressure and lead to periwound maceration, both of which may cause unnecessary pain.

Dressings should establish a secure wound environment that minimizes movement and disruption of fragile healing tissue. Dressing movement can irritate sensitive nerve endings and cause mechanical trauma to the wound bed.<sup>11</sup> Also, avoid over-packing a wound when utilizing an absorptive filler to reduce trauma to wound tissue and stimulation of nerve receptors.<sup>11</sup>

Clinicians should be aware that irritant contact dermatitis may result from dressings that contain adhesive. Contact dermatitis is an inflammation of the skin caused by direct contact with an irritating substance. Itching, redness, tenderness, swelling, and rash are all common symptoms.<sup>12</sup> Reconsider dressing choice if irritant dermatitis is seen or reported.

## STRATEGY 4:

**Select dressings that are known to be atraumatic on dressing removal.**

Mechanical debridement, a primary function of wet-to-dry gauze dressings for the removal of nonviable tissue, also may lead to nonselective debridement—removal of healthy tissue. Patients may suffer significant pain upon removal of wet-to-dry dressings.<sup>13</sup> Although gauze dressings are not considered to be the standard of care for moist wound healing practices, they continue to be used across care settings. During dressing changes, be observant of wound bed/dressing integration and adherence because mechanical debridement is a frequent source of pain. Select contact layers or dressings such as soft silicone dressings to offer solutions for wound bed adherence. In addition to the concerns of wound bed pain caused by dressing adherence and removal, periwound skin stripping resulting from removal of adhesive dressings has been studied.<sup>14</sup> When the skin surface has been breached, microorganisms and other foreign bodies activate inflammation. Inflammation and tissue damage leads to the elaboration of chemical mediators that can cause pain by directly exciting sensory receptors.<sup>15</sup> In the Dykes study,<sup>14</sup> soft silicone dressings were found to be atraumatic upon removal and should be considered when making dressing selections to minimize pain.

## STRATEGY 5:

**Solicit the person's comments and input on interventions and changes in dressing selection and the overall plan of care.**

In the US Pain Survey, as well as in the multinational survey, more than 90% of participants indicated that they preferred the dressing with soft silicone over the traditional adhesive dressing. As caregivers, the most important action we can take is to acknowledge preferences about the dressings and procedures recommended for care and respect patient preferences.<sup>16,17</sup> If patients are satisfied with treatment options and if the treatments

**TABLE 2. 10 QUESTIONS YOU MAY ASK YOUR PATIENTS AND/OR RESIDENTS**

1. Has your wound pain decreased?
2. Has your activity level improved?
3. Has your appetite improved?
4. Are you sleeping better?
5. Has your stress level improved/reduced?
6. Has your ability to perform activities of daily living (eg, work, housework, self care, etc.) improved?
7. Do you feel that your emotional response to family and friends is appropriate?
8. Has your outlook improved?
9. Are you satisfied with your wound plan of care?
10. Do you feel that your wound will heal?

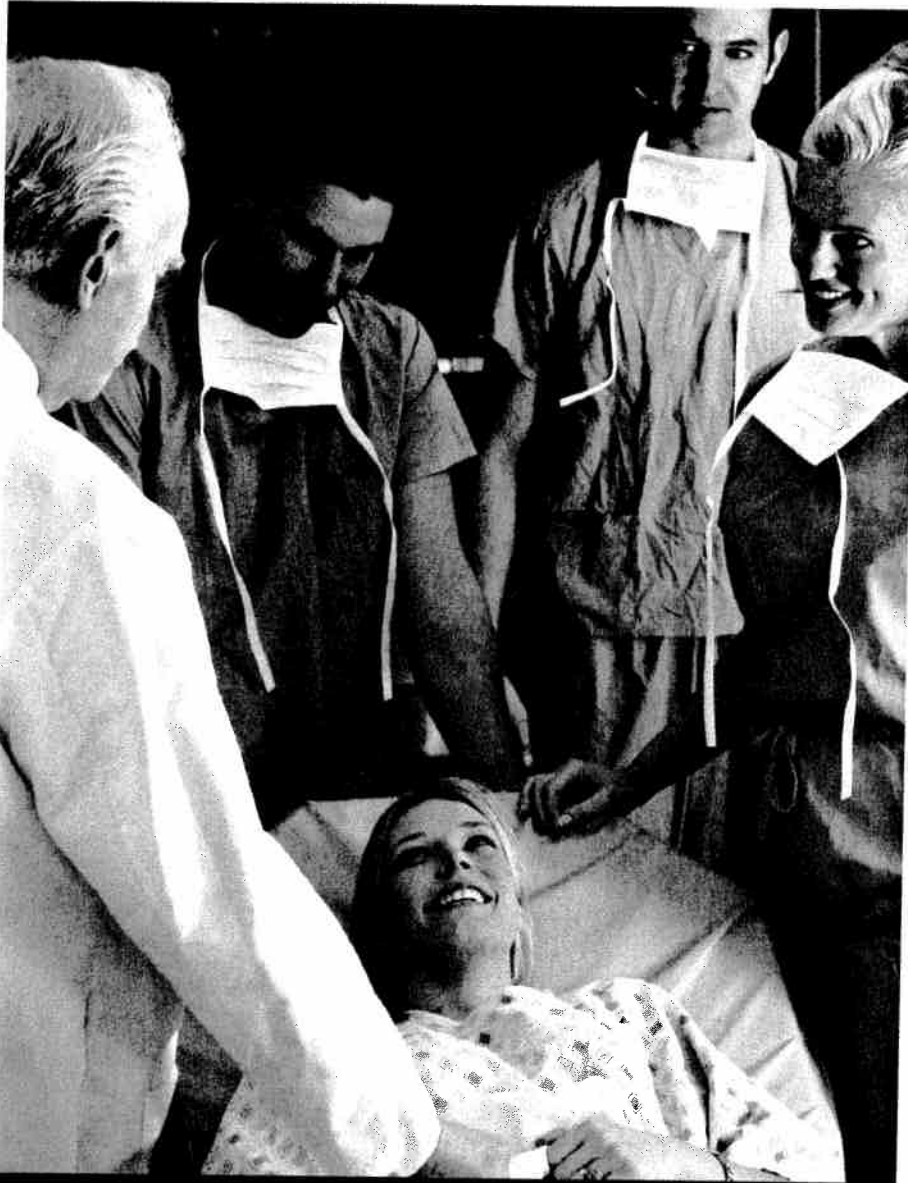
do not cause extraordinary pain and suffering, common sense suggests that adherence to the plan of care and healing outcomes will be improved.

*Table 2, 10 Questions You May Ask Your Patients/Residents*, is an enabler for clinical practice that can be utilized to solicit the person's comments and input.

## STRATEGY 6:

**Establish dressing selection protocols based on the person's reactions and pain measurement data.**

People with chronic wounds often suffer from unremitting or escalating pain that may lead to physical disability and feelings of devastation. Healthcare practitioners must be aware of patient pain and consistently evaluate how treatment regimens and dressing choices may impact pain.<sup>5</sup> Evaluating and understanding levels of pain during wear, during change, and after dressing change procedures may offer unique insights into the wound pain experience. Providing dressings that assist with the management and reduction of pain across all levels may offer improvement in outcomes for people with wounds.



(above) Patient-Centered Care: The hallmark of effective wound pain management.

## CONCLUSION

Like many other clinicians who have studied wound pain,<sup>18,19</sup> we have found that the results of the US Pain Survey challenge us to reflect on current clinical practices. It is clear that many people with wounds experience pain and suffering that is not being addressed, regardless of setting. This is not acceptable in 2008.

The good news is that simple steps can be taken to effectively reduce

wound related pain; steps that are evidence-based, evidence-informed, or based on clinical expertise.<sup>7,8,12</sup> The Six Strategies for Minimizing Wound Pain offer multiple ways to translate these steps into clinical practice. Each step taken in identifying and implementing strategies can mitigate or relieve wound-related pain and will help to relieve the suffering of people with wounds. Use of prudent and responsible best practices will improve outcomes. ■

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