Pain has been found to be a major stressor and patients’ worst memory of critical care. Many patients erroneously believe that pain is to be expected and endured, or are fearful that use of opioid analgesics will lead to addiction. Individual healthcare providers may be unaware of patients’ discomfort or of the harmful physiological effects of unrelieved pain. It is important to recognize that despite our many advances in healthcare, unrelieved pain remains a problem.

The first step to solving this problem is to recognize pain. Assume that all critically ill patients are in pain or are at high risk for pain. Pain can be triggered by many medical conditions including ischemia, infections, inflammation, edema, and distention. Immobilization, incisions, wounds, and the use of invasive and noninvasive medical devices can also cause pain. In addition, many commonly performed nursing procedures such as suctioning, turning, dressing changes, and insertion and removal of catheters may be a source of pain. Some patients are particularly at high risk for poor pain management, specifically those who are unable to vocally communicate because of intubation, those who are chemically paralyzed, and those who are unable to clearly communicate their needs because of sedation or an altered mental status. The very young and the very old frequently fall into these high-risk groups.

Q: Quality improvement data show that patients are not very satisfied with their pain management. How can we do better?

Make pain management a priority. Establish unit standards related to pain assessment and management just as your unit has standards for frequency of vital signs, intake and output, changing intravenous tubing, positioning, and checking the crash cart. As a unit, choose a method for measuring and documenting pain and include pain assessment as a fifth vital sign to be recorded on flowsheets. Continue to monitor outcomes related to pain management.

Emphasize pain prevention. It is easier to control pain when you prevent it from gaining a foothold in the first place. Ask physicians and nurse practitioners who admit patients to your unit to write orders for regularly scheduled analgesic doses or patient-controlled analgesia, rather than as-needed doses, for any patient expected to have pain. This around-the-clock dosing will allow you to prevent the onset of pain. If pain is not expected but occurs anyway, begin analgesic therapy as soon as possible after the pain begins.

Ensure that all patients have at least as-needed analgesic orders so you can immediately begin to treat pain if it occurs. Once initial pain is controlled, remember to use nonpharmacological pain-relief methods such as positioning, relaxation, applications of heat and cold, and guided imagery. Many of these methods fall within nursing’s scope of practice (Table 1).

Don’t give up. Many clinical nurse specialists, physical therapists, clinical pharmacists, and anesthesiologists have special training in the management of pain.
These individuals may be able to assist in improving pain management in specific patient situations.

Q: What is the best way to assess pain in critically ill and injured patients?

Ask the patient. Pain is a highly individualized and subjective experience. We have no objective method of quantifying pain; you just have to believe the patient. If a patient cannot vocally tell you about pain, body language and physiological status may provide clues to its presence. However, these nonverbal behaviors should never be used instead of or to refute a patient’s verbal complaint of pain.

A basic assessment must include at least the intensity and location of the pain. You may want to obtain a more comprehensive assessment for patients whose pain is particularly difficult to control.

Pain intensity is easily measured using a numerical rating scale. To use a numerical rating scale ask the patient, “On a scale of zero to 10, with zero being no pain and 10 being the worst possible pain, which number represents the amount of pain you are having right now?” The number selected by the patient is the pain score. Numerical rating scales may also be depicted as a horizontal or vertical line printed on paper (Figure 1). In this case the patient points to or circles the number representing their pain. This method could be used with a patient who is intubated. Alternatively, intubated patients can also tap the side rail of the bed to represent the number between zero and 10 that corresponds to their pain.

A descriptive rating scale uses a series of words to represent pain intensity (Figure 1). In addition to analog scales, other methods of quantifying pain include the use of poker chips to represent pain intensity. Adults or children are presented with 4 poker chips and told that these 4 chips represent “pieces of hurt.” They are then instructed to select the number of chips that represent the amount of hurt (or pain) that they are experiencing. The number of chips selected is the pain score. A number of pain scales with pictures of faces in various levels of pain are also available for use with children (Figure 2).

Pain location is another essential assessment parameter. Pain location may be determined by simply asking the patient to tell you where the pain is located or to point to that area of his/her body.

Assess pain on a regular schedule around the clock, for example, every 2 hours in critical care settings, and before and after procedures. Pain scores should also

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**Table 1** Nonpharmacological analgesic therapies

<table>
<thead>
<tr>
<th>Physical therapies</th>
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</thead>
<tbody>
<tr>
<td>Application of heat or cold</td>
</tr>
<tr>
<td>Positioning or elevation</td>
</tr>
<tr>
<td>External support or immobilization</td>
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<tr>
<td>Cutaneous vibration or transcutaneous electrical nerve stimulation</td>
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<tr>
<td>Massage</td>
</tr>
<tr>
<td>Acupressure or acupuncture</td>
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<table>
<thead>
<tr>
<th>Cognitive and behavioral therapies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distraction (auditory, visual, tactile, rhythmic)</td>
</tr>
<tr>
<td>Relaxation or biofeedback</td>
</tr>
<tr>
<td>Guided imagery</td>
</tr>
<tr>
<td>Hypnosis or meditation</td>
</tr>
<tr>
<td>Patient teaching or preparatory information</td>
</tr>
<tr>
<td>Yoga</td>
</tr>
</tbody>
</table>

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**Figure 1** Pain intensity scales

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be obtained at an appropriate time after administering an analgesic, eg, recheck pain status 10 minutes after giving an intravenous dose of morphine. If pain is still present, another dose can then be administered.

Q: How should analgesic medications be administered?

Ideally, analgesic therapy should be started before pain begins (preemptive analgesia) or as soon as possible after pain begins. When possible, use both opioid and nonopioid medications to manage pain. Medications such as acetaminophen, and nonsteroidal anti-inflammatory drugs (NSAIDS) work in the peripheral nervous system to control pain. Opioids such as morphine, hydromorphone hydrochloride (Dilaudid), and fentanyl work within the dorsal horn of the spinal column and in higher areas of the central nervous system to control pain. Opioid and nonopioid medications have complementary effects.

The World Health Organization recommends the use of a stepped approach to the use of analgesics (Figure 3). For mild pain, acetaminophen or nonsteroidal anti-inflammatory drugs should be the first therapy. For moderate to severe pain, opioid analgesics are the initial therapy. For patients with chronic neuropathic pain, anticonvulsants such as gabapentin, and antidepressants such as nortriptyline are frequently prescribed.

For acute pain, analgesics should initially be administered intravenously for immediate onset of action. Subsequent doses may be given intravenously or orally, on a regular schedule around the clock. Analgesics with a relatively short duration of action, eg, 3 to 4 hours (morphine or hydromorphone hydrochloride), are used so that doses can be titrated to achieve analgesic effect and avoid side effects. Additional doses or treatments should be available as needed for

Figure 2: Pain affect faces scale. Children are presented with 1 of 3 different randomly ordered face sheets. They select the face that best represents how they feel in relation to their pain conditions from “the happiest feeling possible” to the “saddest feeling possible.” This figure is the scoring card used to quantify children’s responses. The numbers represent the magnitude of pain affect (between 0 and 1) shown in each face, based on previous research on children.

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Figure 3: The World Health Organization 3-step analgesic ladder

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episodes of increased pain. To prevent the reoccurrence of pain, the patient may need to be awakened to receive a scheduled dose of analgesic or a treatment. As the acute pain decreases, analgesic therapies can be changed to an as-needed basis.

For chronic pain and pain associated with cancer, analgesic treatments should cover the entire 24-hour period. Oral or topical preparations of longer-acting analgesics (morphine sulfate [MS Contin], oxycodone hydrochloride [Oxycontin], or a fentanyl patch) should be supplemented by as-needed doses or treatments for breakthrough pain. Dosing should be individualized to manage the pain and minimize side effects. If side effects such as nausea occur, antiemetics should be provided along with the analgesic.

Patients who are receiving adequate medications will report very low pain scores. When this occurs, your pain management plan is working and you should continue the medications as scheduled. Continue to assess the patient for breakthrough pain and side effects. Remember, the goal is to prevent pain from recurring.

Acknowledgments

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References

Update 2003

This article, “Pain Management in the Critically Ill,” reflects current practice; however, since this article was first published in 1998, 2 notable advances have occurred that may lead to improvements in pain relief in acutely and critically ill individuals.

The Joint Committee on the Accreditation of Health Organizations has specifically identified pain management as a required component in the quality review process for hospitals. This has led to an increase in institutional, as well as provider, attention to pain assessment and management practices. In fact, most institutions now use a 0 to 10 scale to evaluate pain, and require documentation of pain assessment on the vital sign flow sheet. Improved assessment and documentation can lead to improved pain management.

In 2001, the results of Thunder Project II regarding patients’ perceptions and responses to procedural pain were published. This groundbreaking study, which included more than 6000 children, adolescents, and adults, confirmed that patients experience significant pain and distress related to commonly performed nursing procedures (turning, tracheal suctioning, wound care, removal of wound drains, femoral sheath removal, insertion of central venous catheters). For adults, turning and drain removal were the most painful procedures. Conversely, relatively little pain occurred with femoral sheath removal and insertion of a central catheter, perhaps because of the use of protocols with these procedures. Adolescents had the greatest pain during wound care and turning.

In the Thunder Project II study, pain was frequently described as sharp, stinging, stabbing, shooting, and awful. In addition, those who had pain with the procedure, exhibited more “pain behaviors”—specifically grimacing, rigidity, wincing, shutting of eyes, verbalization, moaning, and clenching of fists—than patients who did not have pain.

These findings have immediate applicability to clinical prac-
Pain should be assessed not only at rest, but also before and after procedures. Observations of patients' non-verbal behavior should be incorporated into pain assessments. If an individual exhibits pain behaviors at times of increased pain, then those behaviors may be used to evaluate outcomes of pain relief measures. These non-verbal behaviors may be especially useful in recognizing pain in patients who are not able to give a verbal pain score. Pain descriptions from the study, can also be used to better prepare patients for procedures. Finally, increased attention to control of procedural pain is warranted.

These advances should contribute to improvements in patient care and increase the likelihood of attaining the goal of pain relief.

References
Pain Management in the Critically Ill
Julie A. Stanik-Hutt

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