

# *A Primer on Pain and Its Management*

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## **BURDEN OF PAIN IN AMERICA: AN EVOLVING PUBLIC HEALTH CRISIS**

*Pain is a serious and costly public health issue. It affects more American adults than diabetes, heart disease and cancer combined, and is a leading cause of disability in the United States. Even though pain is one of the most common reasons people consult a health care provider, it is often inadequately assessed and treated, resulting in needless suffering, poor outcomes and reduced quality of life and productivity.*

Pain is a complex perception that differs enormously from one person to another, even those with seemingly identical injuries or illnesses.

Untreated or undertreated or inappropriately treated pain can compromise every aspect of life, including a person's physical and mental health, social and intimate relations, ability to sleep and perform everyday tasks, work productivity and financial well-being.

Persistent pain is not only emotionally and physically debilitating for patients, it also places a tremendous burden on families and caregivers, and contributes to excessive health care costs. Chronic pain costs the nation an estimated \$635 billion in medical treatment and lost productivity each year. As the 75 million baby boomers move toward retirement, the epidemic of untreated or undertreated pain is expected to rise.

*Chronic pain affects 1 out of 3 Americans — or an estimated 116 million adults, according to the Institute of Medicine.*

## **PAIN BASICS**

*The International Association for the Study of Pain defines pain as an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage. In 1968, Margo McCaffery, RN, a pioneer in the field of pain management nursing, stated pain is “whatever the experiencing person says it is, existing whenever and wherever the person says it does.”*

### **COMMON PAIN CONDITIONS**

In a National Center of Health Statistics survey, the following are common types of pain:

- low back pain (27 percent)
- severe headache or migraine pain (15 percent)
- neck pain (15 percent)
- facial ache or pain (4 percent)

See:

<http://www.painfoundation.org/media/resources/pain-facts-figures.html>.

At its best, acute pain is the body’s natural alarm system, alerting us to injury (or further injury if already injured). It prompts us to stop a harmful behavior or seek medical attention. For example, lifting too much weight might result in a piercing pain in a person’s back. Within moments of touching a hot surface, the fiery sensation of a burn warns us to quickly pull away. Worsening abdominal pain may be a sign of appendicitis or other serious infection. The experience of pain also beckons the injured person to rest, promoting healing.

At its worst, persistent pain robs people of their livelihood and well-being. When pain persists, it is often a sign that the body’s alert system has broken down. In other words, pain signals remain active. Over time, this heightened response may:

- Harm the nerves, blood vessels and organs
- Suppress immune function
- Result in excessive inflammation
- Delay healing

Since the brain remembers pain, pain may be imprinted into the nerve tissue and continue to send pain sensations even in the absence of painful stimuli. This change in the nervous system means that pain has now evolved into disease state with no physiological meaning or value.

### ***Chronic Pain-Brain Connection***

New research is unraveling how chronic activation of the biological pathways transmitting pain is associated with structural and chemical changes in the brain. A recent study suggests that constant pain signals can result in mental rewiring that affects the frontal cortex — the area of the brain mainly associated with emotion and attention. According to researchers, this provides the first objective proof of brain disturbances in people with chronic pain that is unrelated to the sensation of physical pain. Functional magnetic resonance imaging reveals changes in brain activity and sensitization in people with pain.

## TYPES OF PAIN

	Acute	Chronic
Cause	Generally known	May be known, but often unknown
Duration	Short, well described	Prolonged beyond healing $\geq 3$ months
Onset	Usually sudden	Sudden or gradual development
Treatment	Resolve underlying cause; self-limiting	Focus on underlying cause, if known, and pain disorder: pain reduction, function improvement, minimize side effects
Prognosis	Total relief typically possible	Total relief often impossible

**Acute pain** occurs suddenly due to illness, inflammation, injury or surgery. It has a short duration that subsides when the injured tissue heals. The cause of the pain can usually be diagnosed and treated.

**Persistent (chronic) pain** is pain that lasts long enough (after normal healing or for at least three months), or is intense enough, to affect a person's normal activities and well-being. Failure to treat acute pain promptly and appropriately at the time of injury, during initial medical and surgical care or at the time of transition to community-based care, contributes to the development of chronic pain syndromes. Every time someone undergoes surgery in which nerves and tissue are cut, he or she is at risk for ongoing pain if their initial pain is not addressed or their pain processing is altered during healing.

With chronic pain, pain signals may remain active in the nervous system for weeks, months or even years. Unlike acute pain, chronic pain has no value or benefit; it is a disease in its own right. It can also be especially challenging to treat.



## **PAIN ASSESSMENT**

Timely access to quality pain management is the best way to minimize the suffering and disability often associated with undertreated pain and to avoid additional problems down the road.

Most hospitals, nursing homes and other health care facilities are now required to assess and treat pain. To correctly diagnose pain, a health care professional will:

- Perform a thorough physical exam
- Complete a pain assessment
- Ask detailed questions about the individual's medical history and lifestyle
- Order blood work, X-rays, electrical tests to detect nerve damage, or other diagnostic and laboratory tests

Pain is a subjective experience, and it is critical for health care providers to have a complete picture of the patient's pain history. He/she may ask about seven characteristics of pain to help LOCATE the pain and make the correct diagnosis.

- L** the exact Location of the pain and whether it travels to other body parts
- O** Other associated symptoms such as nausea, numbness or weakness
- C** The Character of the pain, whether it's throbbing, sharp, dull or burning
- A** Aggravating or Alleviating factors. What makes the pain better or worse?
- T** the Timing of the pain, how long it lasts, is it constant or intermittent?
- E** the Environment where the pain occurs, for example, while working or at home

The type of pain someone is experiencing is often a clue to its cause; for example, persistent pain that is burning or tingling is often the result of nerve disease (neuropathy).

## **EFFECTS OF UNRELIEVED PAIN ON PHYSICAL AND MENTAL HEALTH**

If untreated, pain can have serious physiological, psychological and social consequences. It can:

- Limit the ability to work, sleep, exercise or perform everyday tasks (for example, dressing, going to the grocery store, lifting a child)
- Reduce mobility
- Impair strength
- Diminish appetite
- Make it difficult to recover from an injury or fight infection by weakening the immune system
- Aggravate other health problems
- Lead to depression and/or anxiety, which often worsen pain sensations
- Make it difficult to concentrate or reason
- Place added strain on relationships and interfere with intimacy
- Result in a loss of self-esteem and independence

Pain intensity scales are additional tools available to help individuals with pain describe only one feature of their pain, its intensity. These assessment tools help health care providers better understand the level of pain experienced at rest, during activities and how it varies throughout the day. These include numeric, verbal or visual scales.

With **numerical scales**, patients use numbers from 0 to 10 (0 being no pain and 10 being the worst pain ever) to rate the intensity of the pain.

**Verbal scales** contain commonly used words such as “mild,” “moderate” and “severe” to help patients’ describe the severity of the pain.

**Visual scales** use aids like pictures of facial expressions, colors or gaming objects, such as poker chips, to help explain the severity of pain. One type, the Wong Baker Faces Pain Rating Scale, shows six different facial expressions from happy (no hurt) to agony (hurts the worst) to help show health care providers how much pain a patient feels. Body diagrams may also be used to help pinpoint where the pain occurs.



From Hockenberry MJ, Wilson D, Winkelstein ML: *Wong's Essentials of Pediatric Nursing*, ed. 7, St. Louis, 2005, p. 1259. Used with permission. Copyright, Mosby.

**Multidimensional pain assessment tools**, such as the McGill Pain Questionnaire (MPQ) and the Brief Pain Inventory (BPI), have been developed to quantify different aspects of pain, including location and quality of pain and its effect on mood and function. However, these take longer to administer than the simpler scales and some patients who are cognitively impaired or poorly educated may find them difficult to complete. They are generally used in pain research, and have been adapted for clinical use in many settings.

The processing of pain is complex. A basic explanation is that the pain signals of acute pain are initiated when receptors on the skin, within an organ, tissue or nerve are triggered by injury or disease, known or unknown. A series of events follow: an electrical impulse, or pain message, is generated that is then carried on nerve fibers to the spinal cord. The spinal cord transmits the pain signal to various levels of the brain for interpretation and response. At any time during the transport of pain messaging, these noxious signals can be blocked, enhanced or modified. Signaling associated with chronic pain is much more complicated than acute pain as science is beginning to show.

## TREATING PAIN

Successful pain management aims to:

- 1) lessen the pain,
- 2) improve functioning and
- 3) enhance quality of life.

Pain treatment should be:

- patient-centered — tailored to the individual
- multimodal — use a variety of pain treatment options
- multidisciplinary — involve a team of health care providers working directly with the person with pain, caregivers and family members as needed

Not one treatment strategy will work for everyone — a “cookie cutter” approach to pain care is ineffective.

Treatment options may include:

- Medication (anti-inflammatory medicines, opioids or other classes of medications called adjuvants)
- Psychosocial interventions (cognitive-behavioral counseling, guided imagery)
- Rehabilitative approaches (exercise, application of heat/cold, myofascial release, occupational therapy, if needed)
- Complementary alternative medicine (massage, acupuncture, hypnosis)
- Injection or infusion therapies

- Implantable devices and surgical procedures

Research shows that pain can affect one’s emotions and behavior and interfere with the ability to concentrate, manage everyday tasks and cope with stress. Likewise, stress and emotional pressures can make pain worse, provoking “flare ups” and contributing to alterations in the immune system response. These relationships are not always easily recognized or readily fixed by medical procedures or medications alone.

New treatments under investigation are aimed at the physical, psychological and environmental components of chronic pain. Research is also examining the role of genetic predisposition and the immune system in mitigating pain signals.

For a detailed description of the different treatment modalities for managing pain, please refer to the America Pain Foundation’s *Treatment Options: A Guide for People Living with Pain*.

PainSAFE (Pain **S**afety & **A**ccess for **E**veryone), [www.painsafe.org](http://www.painsafe.org), includes information and tips for consumers and clinicians on the safe and appropriate use of pain therapies.

### MEDICATIONS & PAIN MANAGEMENT

Medications play an important role in the treatment of pain. There are three major classes of medications for pain control:

**Non-opioids:** nonsteroidal anti-inflammatory drugs (NSAIDs) and acetaminophen

**Opioids:** morphine, oxycodone, methadone, codeine and fentanyl are examples

**Adjuvant analgesics:** a loose term referring to the many medications originally used to treat conditions other than pain, but now are used to help relieve specific pain problems; examples include some antidepressants and anticonvulsants. Some of these medications have been shown to work well for specific types of pain.

Medications that have no direct pain-relieving properties may also be prescribed as part of a pain management plan. These include medications to treat insomnia, anxiety, depression and muscle spasms, and can help a great deal in the overall management of pain in some individuals.