

Treating pain while mindful of opioid risks

Nurses can help avoid negative effects of opioids while ensuring patient pain is managed.

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PAIN



LEARNING OBJECTIVES

1. Describe the role of opioids in the management of acute pain.
2. Describe the role of opioids in the management of chronic pain.
3. Discuss the management of pain in patients with opioid use disorder.

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PAIN MANAGEMENT can be complicated by a number of factors, including individual patient response to pain, which can be affected by previous experiences, genetics, the ability to cope with trauma, underlying mental health conditions, and expectations about pain relief. To ensure patients receive appropriate acute and chronic pain management, nurses must consider individual response and be knowledgeable about the most appropriate treatment options. In addition, they should be familiar with how to treat pain in patients with opioid use disorder (OUD).

How opioids work

Opioids provide pain relief via the endogenous opioid system, where they act as agonists at mu receptor sites. They fully “unlock” the receptors and produce opioid’s euphoric effect (as a result of dopamine release) as well as pain relief.

Mu-opioid receptors are concentrated in the central nervous system’s pain-and-reward network, the area of the brain that regulates emotions such as anxiety, and the area of the brainstem that regulates breathing. Activating receptors in the brainstem can slow breathing, potentially to the point of respiratory depression—or cessation in the case of overdose—leading to death. In addition, some patients experience opioid-induced hyperalgesia; rather than providing pain relief, opioids cause the patient to become more sensitive to pain.

Opioids in acute pain

Acute pain results from tissue damage that causes a noxious response to send signals to the brain to protect the area from further damage. Using immediate-release opioids for short-term pain management stops the pain signal after the trauma has dissipated and allows the tissue to heal. Nonopioid medications such as acetaminophen or nonsteroidal anti-inflammatory drugs can augment opioids; for some patients, they also can be effective when used alone. The Centers for Disease Control and Prevention (CDC) and Harbaugh and Suwanabol found that more than 75% of patients with acute pain had relief with acetaminophen or ketorolac. The remainder of the patients responded to rescue opioids used once or twice.

Patient education, discussing expectations, and frequent re-evaluation of comfort will help reassure the patient of the care team’s intent to

manage the pain. These efforts are crucial to help reduce possible negative effects from overuse of opioids, such as physiologic dependence (See *Opioids and physiologic dependence*.)

A patient’s response to opioids may be altered by previous exposure to them. For example, a patient with a history of opioid use for chronic pain may not respond as robustly to routine doses of opioids as someone who’s opioid naïve.

Opioids in chronic pain

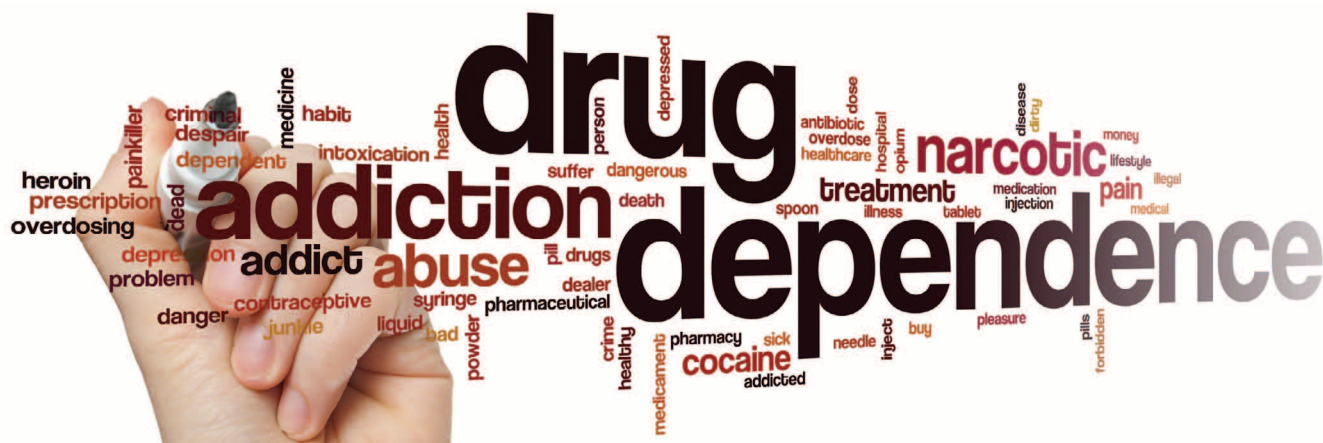
Chronic pain, which is defined as persisting longer than 3 to 6 months and exceeding the expected tissue healing time frame, negatively impacts mood, general activity, and quality of life. (See *Pain chronification*.) In 2016, according to the CDC and Poulin and colleagues, approximately 20% (about 50 million) of Americans suffered from chronic pain and 8% (about 20 million) experienced disabling chronic pain.

Chronic pain may prevent a person from using previous support resources such as social outings, taking part in physical activity such as walking with friends, or engaging in spiritual activities. Opioids to treat chronic pain should allow individuals to return to activities that give life meaning. Previously, long-term opioids, even at high doses, were considered safe for treating chronic pain, and pain relief was associated with quality care. However, the consequences of opioid use for treating long-term pain have led to a re-evaluation of this perspective.

Although many people may safely take opioids long-term, chronic opioid therapy poses too many risks and side effects to be considered as a primary chronic pain treatment. Beyond the danger of overdose, opiates possess many other risks, including opioid dependency and tolerance, higher rate of falls and fractures in older adults, neonatal abstinence syndrome in newborns, decreased testosterone in men, and immune dysfunction. Risks and benefits should be assessed before prescribing opioids.

Research about the effectiveness of long-term opioid use for chronic, non-cancer pain treatment is limited, but anecdotal evidence shows that some patients function well with long-term opioid maintenance. However, changes in pain treatment philosophies may require treatment plan re-evaluation.

Even after re-evaluation, though, some pa-



Opioids and physiologic dependence

Anyone who's treated with opioids for an extended period (more than 3 to 5 days) may develop a physiologic dependence. With physiologic dependence, the body needs the drug to function properly; without it, withdrawal occurs. This dependence isn't the same as addiction, which is characterized by a person not being able to stop using the opioid, even though they know it is harmful.

Physiologic opioid dependence can be confused with addiction because both conditions can induce withdrawal with sudden opioid cessation. Symptoms of withdrawal include the following:

- diarrhea
- cramps
- nausea
- vomiting
- chills
- insomnia
- body aches
- dysphoria
- anxiety
- irritability.

Typically, withdrawal symptoms resolve in days or weeks depending on

the half-life of the opioid.

Although physiologic dependence isn't the same as addiction, an individual with dependence may seek opioids to avoid withdrawal symptoms. This behavior increases the risk for opioid use disorder. To avoid this risk, opioids to manage acute pain should be used for the shortest time possible (most patients with acute pain take opioids for 2 to 3 days) and the number of pills distributed in each prescription should be limited. Some states, insurance companies, and pharmacies limit the amount that can be dispensed.

tients may choose to continue receiving opioid treatment. In that case, providers must clearly identify the benefit of the patient's current medication and minimize its risk. For example, doses may be adjusted to provide just enough relief for the patient to participate in normal activities. Another option is changing from daily opioid use to intermittent use or when pain is severe. These dosage changes can be accompanied by nonpharmacologic treatment.

Opioid use disorder

According to the CDC and Poulin and colleagues, opioid use places about 8% of the population at risk of developing OUD. In addition to genetics, external factors such as poverty, trauma (for example, intimate partner violence), mental health disorders (for example, anxiety and depression), and poor sleep increase OUD risk.

Opioid medications are intended to relieve pain so that patients can resume engagement in life, but for some patients with chronic pain, opioids have the opposite effect because of their actions on the central nervous system. Chronic

pain pathways decrease serotonin and endorphins in the central nervous system. Opioids, which are exogenous endorphins, extinguish the brain's need to produce them. When the individual stops using an opioid, natural endorphin production may take some time (weeks to months) to resume, delaying engagement in life.

Addiction is defined by established criteria as outlined in the *Diagnostic Statistical Manual – Fifth edition (DMS-5)*. The more criteria that are met, the more severe the diagnosis. Individuals with an addiction frequently behave as if nothing matters as much as getting more of the substance. Unconscious triggers may derail the best plans to quit, and the cravings and rewards of the drug are powerful and difficult to ignore.

Opioid addiction may develop slowly. Initially, the person may feel in control of the amount of medication they're taking as well as how often and for how long. However, as the brain adapts to having the drug on board, neurochemistry changes so the individual must have the substance to feel "normal." The main criteria for all addictions can be remem-

bered as the 4 Cs: **C**ompulsive use, **C**ravings, loss of **C**ontrol, and **C**onsequences of use.

Recovery from OUD must go beyond withdrawal and cessation because relapse may result in overdose and death. Medications for opioid use disorder (MOUD) is best practice for treating OUD. Medications, such as methadone and buprenorphine, can decrease cravings and block the rewarding aspects of opioids. MOUD can help patients with OUD stabilize their lives and protect them from accidental overdose. Medications used to treat OUD can decrease the risk of accidental overdose and reduce self-injection of opioids, which may result in infectious disease (for example, HIV and hepatitis C) transmission. (See *Pain and addiction terminology*.)

OUD and acute pain

A common misperception of patients receiving MOUD is that the medications they're taking will also manage acute pain. However, the patient will have developed a tolerance to the analgesic effects of the medication and will require either a different dosing strategy or a different analgesic to obtain pain relief. The acute-care team should consult the pharmacist to determine the best options. For instance, a patient receiving long-acting naltrexone may need either regional anesthesia or nonopioid medication for pain relief. If an opioid is required to manage pain, the patient may be prescribed larger-than-normal doses of a rapid-acting opioid. These higher doses will increase the risk for respiratory depression, so the patient should be closely monitored in the hospital by professionals trained in the use of anesthetic drugs.

Patients in acute pain who have a history of OUD but are not receiving MOUD may require an opioid for a limited time. If the patient must go home with opioids for pain management, a plan to avoid relapse should be developed, including having someone else manage and dispense the medication.

Other pain relief options include nonopioid pharmacologic interventions (such as acetaminophen or ketorolac), elevation of an injured extremity, transcutaneous electrical nerve simulation, and cold packs. Some patients may benefit from physical therapy, relaxation and distraction, bioelectric therapy, or nerve blocks. Pain management also should include establishing treatment goals and expectations as well as the patient's role in recovery.



Pain chronification

Pain chronification is the process of acute pain evolving into chronic pain. Acute pain, initiated by a noxious peripheral stimulation that leads to a painful sensory or emotional reaction, seldom persists past normal tissue healing. However, pain chronification entangles the central nervous system's learning and adapting. Pain becomes translated into an emotional pathway related to feeling, recognition, memory, and motivation.

Chronic pain interferes with normal functioning and can lead to maladaptive behaviors. A combination of factors influences pain chronification:

- psychosocial factors (stress, poor coping, catastrophizing)
- comorbidities with medical and psychiatric implications (heart failure, physical trauma, post-traumatic stress disorder, depression)
- dependencies (substance use disorder, benzodiazepine dependency).

This combination generates poor social function, increases risk for suicide and overdose, and creates treatment challenges. Manhapra and Becker recommend a collaborative model of care that includes:

- patient education about pain chronification and patient engagement in self-care
- substance use disorder treatment
- comorbidity treatment (such as for depression, anxiety, and diabetes)
- polypharmacy reduction
- treatment with alternative therapies such as physical therapy and yoga.

Nurses' role

The American Nurses Association's 2018 position statement, "The ethical responsibility to manage pain and the suffering it causes," states that nurses have "an ethical responsibility to relieve pain and the suffering it causes." The statement also notes that pain management should be "informed by evidence." Evidence has shown that opioids are too often overprescribed and misused; nurses can play a



Pain and addiction terminology

Acute withdrawal	Symptoms that occur when a substance is stopped suddenly.
Addiction	A treatable, chronic medical disease involving complex interactions among brain circuits, genetics, the environment, and an individual's life experiences. People with addiction use substances or engage in behaviors that become compulsive and continue despite harmful consequences. Prevention efforts and treatment approaches generally are as successful as those for other chronic diseases.
Complex persistent opioid dependence	Reluctance or inability of a person taking long-term opioids for pain to taper medication to improve medical and/or functional decline
Chronic pain	Pain that lasts more than 3 to 6 months and beyond normal tissue healing not related to cancer, palliative care, and end-of-life
Dependency	A state in which an organism functions normally only in the presence of a drug. It manifests as a physical disturbance when the drug is removed (withdrawal).
Opioid use disorder	Chronic pattern of opioid use that results in consequential behaviors of relapse, disability, and possible death
Opioid-induced hyperalgesia	A state of nociceptive sensitization caused by exposure to opioids. The condition is characterized by a paradoxical response in which a patient receiving opioids for pain treatment becomes more sensitive to certain painful stimuli.
Protracted abstinence syndrome	Extended withdrawal from an opioid or substance beyond the dramatic acute withdrawal phase. For people who have received long-term opioid therapy and experienced dependency, protracted abstinence syndrome can last from months to years.
Substance use disorder	Pattern of alcohol or other substance use that results in impairment in daily life or noticeable distress
Tolerance	A state in which a patient no longer responds to a drug; a higher dose is required to achieve the same effect.

key role in their appropriate use in both acute and chronic pain.

In patients with acute pain, nurses can monitor for adverse effects and for inappropriate prescriptions. Advocating for nonpharmacologic interventions will further promote optimal pain management.

Nurses also can support and encourage patients as they reduce opioid use for chronic pain. The process begins with patient participation in the decision to adjust treatment and trust in the care team. Next, the team must create a caring atmosphere and provide education to help patients understand the underlying mechanisms of their illness and reassure them that the treatment plan is dynamic and flexible.

Incorporating evidence-based tools, such as the Brief Pain Inventory or the PEG (pain on average, pain interference in enjoyment of life, and pain interference on general activities) pain screening tool to measure a patient's general and emotional functionality related to participation in life, is as important as measuring the patient's perception of pain level. Treatment goals should focus on helping the patient return to participating in usual life activities. Inactivity secondary to pain and opioid sedation can lead to debilitation. Nurses can encourage muscle strengthening through gentle stretching and toning to support improved physical function. Even patients who are chair bound can be encouraged to work on muscle strengthening while sitting.

Active patient participation in chronic pain management is critical for success. Evidence-based psychological treatment—such as cognitive behavioral therapy, acceptance and commitment therapy, and mindfulness—can support patients with chronic pain and serve as adjuncts or alternatives to opioids.

Individualize care

Patients receiving opioids to treat chronic pain require nursing care to maximize pain management and reduce opioid addiction and overdose risk. The opioid epidemic has changed how pain is managed. Honest education about opioids can help patients better understand the patient's role in recovery. Reduced long-term opioid treatment must be balanced and individualized to ensure patients can participate in normal activities. As patient advocates, nurses should track and monitor overall patient function and commu-

nicate with the team about adjusting the treatment plan as needed.

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Please mark the correct answer online.

1. Which statement about the physiologic effects of opioids is correct?
 - a. They provide relief via the beta-receptor opioid system.
 - b. They provide relief via the exogenous opioid system.
 - c. They act as antagonists at mu receptor sites.
 - d. They act as agonists at mu receptor sites.
2. Which statement about the pharmacologic management of acute pain is correct?
 - a. Nonsteroidal anti-inflammatory drugs should be used only after opioids are first tried for pain management.
 - b. Nonsteroidal anti-inflammatory drugs can augment opioids and may be effective when used alone.
 - c. Using short-term opioids for short-term pain management stops the pain signal after the trauma has dissipated and allows the tissue to heal.
 - d. Using extended-release opioids for short-term pain management stops the pain signal after the trauma has dissipated and allows the tissue to heal.
3. What are the differences between addiction and physiologic dependence on opioids?

4. How can physiologic dependence on opioids be avoided?

5. Chronic pain is defined as pain that exceeds the expected tissue healing time frame and persists longer than
 - a. 1 to 3 months.
 - b. 2 to 7 months.
 - c. 3 to 6 months.
 - d. 7 to 9 months.
6. Chronic pain pathways
 - a. decrease serotonin and endorphins in the central nervous system.
 - b. increase serotonin and endorphins in the peripheral nervous system.
 - c. have no effect on endorphins in the central nervous system.
 - d. increase exogenous effects in the peripheral nervous system.
7. Your patient says they're taking medications for opioid use disorder (MOUD). Which statement about this treatment is correct?
 - a. MOUD is reserved for when initial treatment for OUD fails.
 - b. Buprenorphine should be avoided because it can increase cravings.
 - c. Medications used to treat OUD can decrease the risk of accidental overdose.
 - d. Methadone should be avoided because it can increase opioids' rewarding effects.
8. A common misconception of patients receiving MOUD is that the medications they're taking will also manage acute pain. What steps can nurses take to ensure these patients' pain is managed effectively?

9. Nonopioid interventions to relieve pain in patients with a history of OUD include all of the following *except*:
 - a. morphine.
 - b. ketorolac.
 - c. transcutaneous electrical nerve stimulation.
 - d. nerve blocks.
10. How can nurses help patients reduce opioid use for chronic pain?

11. Which term refers to a state of nociceptive sensitization caused by exposure to opioids?
 - a. Opioid-induced hyperanalgesia
 - b. Complex persistent opioid dependence
 - c. Opioid use disorder
 - d. Dependency
12. Which term refers to extended withdrawal from an opioid or substance beyond the dramatic acute withdrawal phase?
 - a. Opioid-induced hyperanalgesia
 - b. Complex persistent opioid dependence
 - c. Substance use disorder
 - d. Protracted abstinence syndrome