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Contact Hours: **2**

# Pain and Pain Symptom Management for Michigan Nurses

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**LEARNING OUTCOME AND OBJECTIVES:** Upon completion of this course, you will better understand the experience of pain, appropriate assessment and interventions for pain, and issues regarding opioid use. Specific learning objectives to address potential knowledge gaps include:

- Discuss pain and the experience of pain.
- Outline the elements of a comprehensive pain assessment.
- Describe pharmacologic and nonpharmacologic interventions for pain.
- Summarize issues concerning the use of controlled substances in pain management

## INTRODUCTION

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Modern pain research began in the 1960s, and in recent decades, there has been a change in the perception of pain that has profoundly influenced scientific and medical pain research and treatment. Pain is no longer viewed as a symptom but rather a disease in and of itself. Its occurrence, severity, duration, response to treatment, and disabling consequences vary from person to person. Like other diseases, pain is more than a biological phenomenon; it has profound emotional and cognitive effects.

In 2010, the Council of the International Association for the Study of Pain (IASP) issued the Declaration of Montreal, which asserts that “withholding of pain treatment is profoundly wrong, leading to unnecessary suffering which is harmful.” The Declaration further asserts:

Article 1. The right of all people to have access to pain management without discrimination

Article 2. The right of people in pain to acknowledgment of their pain and to be informed about how it can be assessed and managed

Article 3. The right of all people with pain to have access to appropriate assessment and treatment of the pain by adequately trained healthcare professionals (IASP, 2021a)

To meet this obligation, effective management of pain requires an in-depth knowledge of the complexity of the pain experience, enhanced assessment skills, treatment modalities currently available, and policies that affect how these modalities may be utilized.

The CDC reported that, in 2019, 20% of U.S. adults had chronic pain and 7% had chronic pain that frequently limited life or work activities (referred to as *high-impact* chronic pain) in the past three months. Chronic pain and high-impact chronic pain are among the most common reasons adults seek medical care and are associated with decreased quality of life, opioid dependence, and poor mental health (CDC, 2020).

## THE EXPERIENCE OF PAIN

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Pain is a warning mechanism protecting an individual by influencing them to withdraw from harmful stimuli and is primarily associated with injury or the threat of injury. Pain is subjective and difficult to quantify, as it has both affective and sensory components. The neuroanatomic basis of pain reception develops before birth, and individual pain responses are learned in early childhood. These responses are affected by social, cultural, psychological, cognitive, and genetic factors (Meldrum, 2021).

### What Is Pain?

In 1979 the International Association for the Study of Pain defined pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.” The newer 2020 definition (below) replaces terminology that relied upon a person’s ability to describe the experience to qualify as pain. Unlike the older definition, the newer definition no longer excludes infants, elderly people, and others—even animals—who cannot verbally articulate their pain.

- Pain is always a personal experience that is influenced to varying degrees by biological, psychological, and social factors.
- Pain and the detection of painful stimuli are different phenomena. Pain cannot be inferred solely from activity in sensory neurons.
- Through their life experiences, individuals learn the concept of pain.



- A person's report of an experience as pain should be respected.
- Although pain usually serves an adaptive role, it may have adverse effects on function and social and psychological well-being.
- Verbal description is only one of several behaviors to express pain; inability to communicate does not negate the possibility that a human or a nonhuman animal experiences pain.  
(IASP, 2021a)

Pain alters the quality of life more than any other health-related problem. It interferes with sleep, mobility, nutrition, thought, sexual activity, emotional well-being, creativity, and self-actualization. Surprisingly, even though pain is such an important obstacle to comfort, it is one of the least understood, most undertreated, and oft-discounted problems of healthcare providers and their patients.

PAIN-RELATED TERMINOLOGY	
Term	Definition
Allodynia	Pain due to a stimulus that does not normally provoke pain
Analgesia	Absence of pain in response to stimulation that would normally be painful
Causalgia	A syndrome of sustained burning pain, allodynia, and hyperpathia after a traumatic nerve lesion
Dysesthesia	An unpleasant abnormal sensation, whether spontaneous or evoked
Hyperalgesia	Increased pain from a stimulus that normally provokes pain
Hyperpathia	A painful syndrome characterized by an abnormally painful reaction to a stimulus, especially a repetitive stimulus, as well as an increased threshold
Hypoalgesia	Diminished pain in response to a normally painful stimulus
Neuralgia	Pain in the distribution of a nerve or nerves
Neuropathic pain	Pain caused by a lesion or disease of the somatosensory nervous system
Nociception pain	Pain arising from actual or threatened damage to non-neural tissue due to the activation of nociceptors (high-threshold sensory receptors of the peripheral somatosensory nervous system)
Pain threshold	Amount of pain required before individuals feel the pain; the lower the threshold, the less pain can be endured; the higher the threshold, the more pain can be endured
Pain tolerance level	Maximum intensity of a pain-producing stimulus that a subject is willing to accept in a given situation; the subjective experience of the individual
Paresthesia	An abnormal sensation whether spontaneous or evoked

(IASP, 2021a)



## Classification of Pain

The classification of pain is complicated, and there are several different classification systems, many of which overlap. Among other characteristics, pain can be classified by duration and source.

### BY DURATION

Pain is classified by duration as acute or chronic.

#### ***Acute Pain***

Acute pain is protective in that it motivates a person to take action immediately. Acute pain is caused by noxious stimulation due to injury, a disease process, or the abnormal function of muscle or viscera. Acute pain begins suddenly, is usually sharp in quality, and correlates with the amount of damage. It is temporary and subsides as healing takes place. In acute pain, the central nervous system is intact, and acute pain is a symptom. Examples of causes of acute pain include:

- Surgery
- Broken bones
- Dental work
- Burns or cuts
- Labor and childbirth

There are two types of acute pain:

- **Somatic** pain results from superficial injury to skin and subcutaneous tissue (e.g., burns, cut, abrasions) or deep injury to muscle, bone, joint, and connective tissues (e.g., fractures, arthritis, fibrositis, rupture of muscle belly).
- **Visceral** pain results from injury to the internal organs (e.g., peptic ulcer, angina pectoris, renal colic).

In most instances, acute pain does not last longer than six months and disappears when the underlying cause of pain has been treated or has healed (Cleveland Clinic, 2022).

#### ***Chronic Pain***

Chronic pain is ongoing and usually lasts longer than six months. This type of pain continues even after the injury or illness that caused it has healed. Chronic pain persists, recurs, or progresses over a long period of time and is often resistant to medical treatments. Pain signals remain active in the nervous system for weeks, months, or years. Some people suffer chronic pain even when there is no past injury or apparent body damage. Chronic pain is linked to such conditions as:



- Headache
- Arthritis and other musculoskeletal conditions
- Cancer
- Chemotherapy/radiation
- Nerve pain
- Back pain
- Fibromyalgia
- Surgical complications  
(Cleveland Clinic, 2022)

### **BY SOURCE**

The sources (causes) of pain are divided into the categories of nociceptor, neuropathic, psychogenic, and idiopathic.

#### ***Nociceptor Pain***

Nociceptor pain is acute pain that results when tissue damage produces a stimulus that sends an electrical impulse across a receptor (nociceptor) by way of a nerve fiber to the central nervous system. Receptors for this type of pain are located all around the body, particularly under the skin and the internal organs. Some body tissues, such as the brain and lung, have no nociceptors, and some tissues have many.

#### ***Nociplastic Pain***

Nociplastic pain arises from altered nociception despite the absence of clear evidence of actual or threatened tissue damage causing the activation of peripheral nociceptors or evidence for disease or lesion of the somatosensory system. This type of pain may reflect changes in the way the nervous and immune systems function (Slater & Davies, 2021).

#### ***Neuropathic Pain***

Neuropathic pain results from damage to or dysfunction of the peripheral or central nervous system rather than from stimulation of pain receptors. Mechanisms of neuropathic pain are complex and involve changes:

- At the peripheral nociceptor and nerve level
- At the dorsal root ganglion (DRG)
- In the central nervous system, nociceptive pathways, and terminal structures



One example of neuropathic pain is phantom limb syndrome, which can occur following an amputation and when the brain continues to receive pain messages that originally carried impulses from the missing limb (Watson, 2022).

### ***Radicular Pain***

Radicular pain is a very specific type of pain that can occur when the spinal nerve becomes compressed or inflamed. It radiates from the back and hip to the leg(s) by way of the spine and spinal nerve root. People with radicular pain may experience tingling, numbness, and muscle weakness (Beaumont Health, 2022).

### ***Psychogenic Pain***

Psychogenic pain is believed to be sustained mainly by psychological factors. It does not refer to the common idea that pain experienced by some patients is exacerbated by psychological factors, or the finding of high pain-related distress or comorbid psychiatric disease. Instead, it implies that the pain is best understood as a result of psychological processes. It is classified as a somatic symptom disorder with prominent pain, which is diagnosed on the basis of excessive thoughts, feelings, or behaviors related to pain that are distressing, impair function, and appear out of proportion to physical findings.

It must be remembered that psychogenic pain is truly experienced and is not a deception. This distinguishes it from disorders that reflect a serious mental disorder in which reports of pain may not indicate a true experience of pain, and from malingering (Portenoy & Dhingra, 2020).

### ***Idiopathic Pain***

Idiopathic pain, also called *pain of unknown origin*, is chronic pain lasting six months or longer that has no identifiable cause. Although its origin is often unknown, idiopathic pain is very real. It is also possible for this type of pain to remain long after a medical condition has healed when pain normally should have ended (Jacques, 2021).

## **Factors That Influence the Experience of Pain**

The experience of pain is influenced by both physiologic and psychosocial factors, all of which clinicians must consider in pain management. Physiologic factors include age, gender, genetic makeup, and stress response. Psychosocial factors include the person's personality, the meaning ascribed to pain by an individual, fear and catastrophizing, and emotional distress (Ratka, 2020; Padgett, 2019).

## **PAIN ASSESSMENT**

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A precise and systematic assessment of pain is important for making an accurate diagnosis and for the development of an effective treatment plan. Pain is a multidimensional phenomenon that



produces strong emotional reactions that can affect an individual's function, quality of life, emotional state, social and vocational status, and general well-being. Therefore, it is recommended that pain be assessed using a multidimensional approach and that these various impacts be addressed and included in the diagnostic formulation.

A comprehensive pain assessment includes a history of the pain, behavioral observations, past medical history, medications, family history, a physical examination, and if necessary, diagnostic testing.

## Pain History

A pain assessment begins with the history of the problem and can be obtained from written documents and from interviews with the person in pain as well as family members and other caregivers. Pain is a subjective symptom, and pain assessment is, therefore, based on the patient's own perception of pain and its severity.

Because pain is subjective, a self-report is considered the "gold standard," or the best, most accurate measure of a person's pain. One method to obtain a complete pain history is the PQRST assessment (see box).

### PQRST PAIN ASSESSMENT

#### Provocation/Palliation (P)

- What were you doing when the pain started?
- What caused the pain?
- What seems to trigger it (e.g., stress, position, certain activities)?
- What relieves it (e.g., medications, massage, heat/cold, changing position, being active, resting)?
- What aggravates it (e.g., movement, bending, lying down, walking, standing)?

#### Quality/Quantity (Q)

- What does the pain feel like (e.g., sharp, dull, stabbing, burning, crushing, throbbing, nauseating, shooting, twisting, stretching)?

#### Region/Radiation (R)

- Where is the pain located?
- Does the pain radiate, and if so, where?
- Does the pain feel like it travels/moves around?



- Did it start somewhere else and is now localized to another spot?
- Is it accompanied by other signs and symptoms?

### Severity Scale (S)

- How severe is the pain on a scale of 0–10, with 0 as no pain and 10 as the worst pain ever?
- Does the pain interfere with activities?
- How bad is the pain at its worst?
- Does it force you to sit down, lie down, slow down?
- How long does an episode last?

### Timing (T)

- When or at what time did the pain begin?
- How long did it last?
- How often does it occur (e.g., hourly, daily, weekly, monthly)?
- Is the pain sudden or gradual in onset?
- When do you usually experience it (e.g., daytime, night, early morning)?
- Are you ever awakened by it?
- Does it ever occur before, during, or after meals?
- Does it occur seasonally?

(Crozer Health, 2022)

## Behavioral Observations

Most people who are experiencing pain usually show it either by verbal complaint or nonverbal behaviors or indicators. It is important, however, to remember that people in pain may or may not display behaviors that are considered an indication of “being in pain,” and making judgments about their honesty is inappropriate. Nonverbal indicators of pain may include:

- Facial expressions
- Vocalizations
- Body movements
- Activity/routine changes





- Alterations in social interactions
- Protective movements
- Mental status changes
- Physiological changes  
(Toney-Butler, 2019; Victoria Department of Health, 2021)

## History

Relevant past medical and surgical history may help determine the etiology of pain (e.g., diabetes, history of cancer, rheumatic disease) and may reveal conditions that affect the choice of therapy. This includes:

- Prior medical illness (e.g., renal or hepatic insufficiency/disease, which affects choice of analgesic and dosing)
- Prior psychiatric illnesses (e.g., depression or anxiety)
- Prior surgeries, scarring, repeated surgeries (may increase sensitivity to pain)
- Past injuries and accidents
- Coexisting acute or chronic illnesses
- Chemical dependence
- Prior problems with pain and treatment outcomes
- Investigations conducted (e.g., medical imaging)

A complete list of current **medications** (past and present) and usage, including over-the-counter medications and alternative, herbal, and natural products, is obtained, as well as the patient's report of their effectiveness. Evaluation of physiologic tolerance (diminished response) related to chronic use of some medications and use of alcohol and illicit drugs is also included.

**Family history** is important, as it may give a clue to any predisposition to pain-causing illnesses and conditions that may involve the connective tissues (e.g., kyphoscoliosis), metabolism (e.g., sickle cell disease), and neurologic system (e.g., familial amyloid neuropathy). Other types of disorders that may cluster in families include fibromyalgia, persistent back pain, irritable bowel syndrome, and some types of arthritis (CASN/AFPC, 2021).

## Review of Systems

The review of systems may suggest conditions that are associated with nociplastic sensory hypersensitivity (pain with no clear evidence as to source), and may support a syndromic pain



diagnosis such as chronic fatigue, headache, or widespread conditions such as fibromyalgia (Tauben & Stacey, 2022).

The psychosocial history is an important aspect to a review of systems, because what first appears to be a simple problem can become much more complex due to the influence of psychological and social factors. A psychosocial history includes:

- Psychological history: emotional state, personality, self-esteem
- History of mental illness and past traumatic experiences
- Family systems
- Social history: economic factors, education, social class, culture/ethnicity (Caring to the End, 2022)

## Functional Assessment

Components of a functional assessment include:

- Ability to complete activities of daily living
- Mood/mental health
- Mobility
- Work ability
- Sleep
- Relations with other people (CASN/AFPC, 2021)

## Physical Examination

A systematic, targeted, pain-focused physical examination is most fruitful when the pain history interview and behavioral observations are conducted at the same time. Because pain may be referred from some other area of the body, the examination should include a full visual scan from head to toe, including:

- Mental status examination
- Vital signs
- General inspection
- Auscultation of lungs, heart, and bowel sounds
- Palpation to demarcate the painful area, trigger points, or changes in sensory or pain processing
- Musculoskeletal examination



- Neurological examination
- Abdominal, pelvic, or rectal exam  
(Anesthesia Key, 2019; Tauben & Stacey, 2022)

## Diagnostic Testing

Although there are no diagnostic tests available as yet to determine how much pain a person is experiencing, and no test that can measure the intensity or location of pain, there are a number of tests that can be done to determine the cause or source of pain.

### LABORATORY TESTS

Routine blood studies are **not** indicated, but directed testing should be ordered when specific causes of pain are suggested by the patient's history or physical examination. These may include:

- Complete blood count
- Comprehensive metabolic panel
- Erythrocyte sedimentation rate (ESR)
- C-reactive protein
- Vitamin B<sub>12</sub>, B<sub>6</sub>, and folate levels
- Fasting blood sugar
- Hemoglobin S
- HIV antibodies
- HSV antibodies
- Lyme antibody
- Rheumatologic tests
- HLA-B27 antigen  
(Nnanna, 2021; Asher, 2022)

### IMAGING AND ELECTRODIAGNOSTIC TESTING

- Plain X-ray films
- Ultrasound
- Myelograms
- Computerized tomography
- Discogram



- Magnetic resonance imaging (MRI)
- 18-FDG PET and MRI (a newer PET/MRI method)
- Functional MRI
- Bone scans
- Electromyography (EMG)
- Nerve conduction studies (NCS)
- Diagnostic nerve block
- Somatosensory evoked potential (SSEP)
- Electroencephalography (EEG) and magnetoencephalography (MEG) (Agranoff, 2020; Wheeler, 2021; O'Connor, 2020)

## Psychological Examination

A psychological assessment is intended to identify emotional reactions, maladaptive thinking and behavior, and social problems that can contribute to pain and disability. A psychological assessment includes a semistructured clinical interview and self-report instrument to assess differences in the domains of pain experience, functional impairment, and pain-related disability.

### PAIN AND RISK FOR SUICIDE

Chronic pain is prevalent in people who die by suicide. Chronic, nonmalignant pain, independent of other factors such as sociodemographic and physical and mental health status, doubles the risk of suicide. Risk factors for suicidal ideation and behavior in those with chronic pain include:

- Multiple pain conditions
- Severe pain
- More frequent episodes of intermittent pain (e.g., migraines)
- Longer duration of pain
- Sleep onset insomnia

Psychological processes relevant to patients with chronic pain who may be at risk for suicide include helplessness and hopelessness, a desire to escape the pain, and problem-solving deficit. Evaluation should include patient and family past histories of suicidal ideation and behavior (Schreiber & Culpepper, 2022).



## STRATEGIES FOR TREATING AND MANAGING PAIN

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A comprehensive pain management approach includes:

- Appropriate pharmacologic and nonpharmacologic interventions
- Education of patient, family, and caregivers about the plan
- Ongoing assessment of treatment outcomes
- Regular review of the treatment plan

### Pharmacologic Interventions

Pharmacologic interventions can be broadly categorized as primary analgesic medications and adjuvant (co-analgesic, or “helper”) medications. Analgesics include nonopioid analgesics and opioid analgesics. Nonopioids include acetaminophen and nonsteroidal anti-inflammatory drugs used to treat mild pain and also to serve as adjuvant medication for relief of moderate to severe pain. Opioids are narcotics used for moderate to severe pain.

#### OPIOID ANALGESICS

Opioids are synthesized compounds used for moderate to severe pain and may include:

- Oxycodone
- Hydrocodone
- Oxymorphone
- Buprenorphine

Drugs that are created in laboratories that mimic effects of opiates but are not derived from the opium poppy are synthesized drugs. Examples include methadone, fentanyl, and meperidine (OR ADPC, 2022).

#### OPIOIDS AND DRUG TOLERANCE, DEPENDENCE, AND ADDICTION

When an opioid drug is used on a regular basis, generally after more than 2–3 weeks, the same dose of the drug has less of an effect. This is referred to as **tolerance**, a physiological state in which an increased dosage is needed to produce the same effect, or reduced effect is observed with constant use.

With repeated use of opioids and the development of tolerance, **dependence** occurs. Physical dependence is a physiological state of neuro-adaptation characterized by emergence of withdrawal syndrome if the drug is stopped, decreased abruptly, or an antagonist is



administered. Physical dependence does not equate with addiction. Dependence is characterized by the symptoms of tolerance and withdrawal. The brain adapts to repeated exposure to the drug and can only function normally in the presence of the drug. When the drug is withdrawn, physiologic reactions occur, which can be mild or even life-threatening.

**Addiction** is a neurobehavioral syndrome with genetic and environmental influences that results in psychological dependence on the use of substances for their psychic effects and is characterized by compulsive use despite harm (State of Michigan Department of Community Health, n.d.)

## ADJUVANT ANALGESICS

Adjuvant analgesics (co-analgesics) are drugs that were developed for clinical uses other than pain but are used to enhance the analgesic effects of drugs used for pain. These may include:

- Antidepressants
- Anticonvulsants
- Antispasmodics
- Antihypertensives
- Osteoclast inhibitors
- Radiopharmaceuticals
- Anxiolytics
- Neurotoxins
- Topical anesthetics
- Corticosteroids
- Anesthetic drugs
- Cannabinoids
- Anticholinergics  
(Portenoy et al., 2022)

## CANNABIS (MEDICAL MARIJUANA)

The majority of states, including Michigan, allow for the use of medical marijuana. However, federal law continues to prohibit use of cannabis or its derivatives for any purpose. This means that people may be arrested and charged with possession even in states where marijuana use is legal (Kellogg et al. 2022).



Michigan laws regarding medical marijuana state:

- An adult may possess up to 2.5 ounces of marijuana, up to 15 grams of which may be marijuana concentrate.
- Within a residence, an adult may possess up to 10 ounces of marijuana and any marijuana produced by marijuana cultivated on the premises.
- An individual can cultivate less than 12 plants for personal use.
- An adult may transfer up to 2.5 ounces of marijuana to another adult as long as there is no remuneration and the transfer is not advertised or promoted to the public.  
(NORML, 2022)

## Nonpharmacologic Interventions

Evidence-based nonpharmacologic therapies are safe when correctly administered and can be effective components of comprehensive pain management that can reduce the need for opioids. Nonpharmacologic therapies can be the sole intervention, or they can be combined with other treatments. Nonpharmacologic interventions include physical, psychological, and mind-body modalities.

### PHYSICAL MODALITIES

Physical modalities for relief of pain refer to any therapeutic medium that uses the transmission to or through the patient of thermal, electrical, acoustic, radiant, or mechanical energy.

- Thermal modalities (heat and cold)
- Manual modalities (massage, manipulation therapy)
- Acupuncture
- Electrophysical agents (TENS, iontophoresis, percutaneous electric nerve stimulation)
- Acoustic modalities (ultrasound, phonophoresis, shortwave and microwave diathermy, vibroacoustic therapy)
- Light therapy (low-level laser, ultraviolet light)
- Interventional modalities (injection, radiofrequency ablation, intrathecal pump, spinal cord stimulator)
- Dry needling

### PSYCHOLOGICAL MODALITIES

One of the most common types of psychotherapy used in pain management is **cognitive-behavioral therapy (CBT)**. CBT can be described as the “gold standard” psychological treatment for persons with a wide range of pain issues. It can be used alone or in conjunction



with medical or interdisciplinary rehabilitation treatments. Currently, CBT is the prevailing psychological treatment for individuals with chronic pain issues (Physiopedia, 2022a).

**Acceptance and commitment therapy (ACT)** helps patients to shift their primary focus from reducing or eliminating pain to fully engaging in their lives. The goal of the therapy is to help patients accept whatever discomfort exists, both physical and emotional, while continuing to live their lives according to their values (Glasofer, 2021).

## MIND-BODY TECHNIQUES

**Biofeedback** is the use of instrumentation to mirror psychophysiologic processes, such as blood pressure, heart rate, and skin temperature, of which an individual normally is unaware and which may be brought under voluntary control. Types of biofeedback devices include:

- Electromyogram (EMG)
- Thermal
- Neurofeedback or electroencephalography (EEG)
- Electrodermal activity (EDA)
- Heart rate variability (HRA)

**Relaxation** therapies have been found helpful in the management of chronic headaches and other types of chronic pain. Relaxation encourages reduction in muscle tension, resulting in a decrease in pain intensity (NCCIH, 2022).

**Hypnosis** can provide analgesia, reduce stress, relieve anxiety, improve sleep, improve mood, and reduce the need for opioids. It can also enhance the effectiveness of other forms of relaxation therapies and biofeedback for pain (Cosio & Lin, 2020).

Diverting attention (**distraction**) from feelings and thoughts of pain is a well-researched pain coping strategy. Mental distractions actually block pain signals from the body before they ever reach the brain (Stanford Health Care, 2021; Keane, 2021).

**Mindfulness**-based interventions (e.g., meditation) have been found to have significant effects on chronic pain, yet the mechanisms underlying these effects are not well understood. There are several types of mindfulness-based interventions, including:

- Mindfulness-based stress reduction (MBSR)
- Mindfulness-based cognitive therapy (MBCT) (see above)
- Primary care brief mindfulness training (PCBMT)
- Mindfulness-based exposure therapy (MBET)
- Mantra-based meditation training (Cosio & Demyan, 2021)





**Virtual reality** provides immersive experiences that absorb more of the brain’s attention. With fewer mental resources left to process pain signals, people perceive less pain. VR causes a reduction of the electrical signals through which neurons communicate. Further validation tests of EEG and investigation on VR effects are needed to better understand how our brain acts while immersed in a virtual world (VirtualTimes, 2021).

**Mirror therapy** is a rehabilitation therapy in which a mirror is placed between the arms or legs so that the image of a moving, nonaffected limb gives the illusion of normal movement in the affected limb. Mirror therapy exploits the brain’s preference to prioritize visual feedback over somatosensory/proprioceptive feedback concerning limb position. The reflection “tricks” the brain into thinking there are two healthy limbs (Physiopedia, 2022b).

**Yoga** is a mind-body and exercise practice that helps relieve chronic pain. Yoga has many of the same benefits as mindfulness practice due to the common focus on breath, body, and present-moment awareness. There are different types of yoga, with the most evidence of benefit being shown through Iyengar yoga, hatha yoga, and Viniyoga (DHWA, 2021).

**Tai chi** and **qigong** are forms of traditional Chinese exercise that incorporate the concepts of two opposing forces—yin and yang. Both exercises are based on the idea and core principle that increasing energy in the body, known as *chi*, through gentle and repeated movements can enhance a person’s well-being (Marks, 2022; Winchester Hospital, 2022).

## Evaluating the Effectiveness of Interventions

There are multiple outcome measures required to adequately assess the pain experience and how it has been modified by pain management interventions. The outcome of pain management is done by assessing:

- The degree of analgesic effect in comparison to the patient’s baseline
- The time to onset of the analgesic effect and the time to maximum reduction in pain intensity
- The duration of the analgesic effect
- Measures of physical functioning
- Measures of emotional functioning
- Secondary effects related to the treatment (Edward, 2021)



## Nursing Principles of Pain Management

Many disciplines are involved in managing a patient's pain, and nurses play a pivotal role in the assessment, monitoring, interpretation, and evaluation of pain. Effective pain management by nurses is fundamental to quality of care and is the first responsibility of the nurse.

Nursing functions of appropriate pain management include:

- Ensuring the patient or legal representative actively participates in treatment plan and understands available options and potential side effects
- Educating persons and families in a culturally competent manner regarding pain management
- Using a standardized scale to periodically assess and document the patient's pain
- Developing and implementing a plan of care that prevents and alleviates pain as much as possible
- Administering medications and treatment as prescribed
- Initiating nonpharmacologic nursing interventions as indicated
- Serving as an advocate for the patient
- Communicating side effects or reports of unrelieved pain to the prescriber and team members
- Documenting pain assessment, intervention, evaluation, and ongoing changes (State of Michigan Department of Community Health, n.d.)

### NURSING PRINCIPLES OF PAIN MANAGEMENT USING CONTROLLED SUBSTANCES

- All persons experiencing pain have a right to pain relief.
- A person's report of pain is the optimal standard for all interventions.
- A comprehensive nursing assessment must be completed, including subjective description of pain, objective data, and identified need for psychosocial/spiritual support.
- Fear of addiction of opioids and other pain medications should not be a barrier to pain management.
- Nurses recognize and apply the following concepts when providing care:
  - Tolerance and physical dependence are consequences of sustained use of opioid analgesics and are not symptoms of addiction.
  - Pseudo-addiction is a pattern of drug-seeking behavior by persons with pain who are fearful of receiving inadequate pain management and may be mistaken for addiction.



- Persons with a history of substance abuse have a right to adequate pain relief even if opioids must be used.
- An interdisciplinary approach is optimal.
- Pain management continues even if the person becomes unresponsive.

(State of Michigan Department of Community Health, n.d.)

## OPIOID MISUSE, ABUSE, AND DIVERSION

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Along with attempts to improve identification and treatment of pain, there has been an equal rise in prescription opioid addiction and abuse in the United States. Opioid misuse, abuse, and diversion are major problems with serious consequences.

### Scope of the Problem

The National Institute on Drug Abuse (2022a) reports that:

- Among people ages 12 and older in 2020, an estimated 2.3 million people in the United States had a prescription opioid use disorder in the past year.
- Nearly 92,000 persons in the United States died from drug-involved overdose in 2020 due to illicit drugs and prescription opioids. The national overdose deaths involving prescription opioids among all ages in 2020 was 16,416.
- Among young people in 2021, an estimated 4.4% of 12th graders reported misusing any prescription drug in the past 12 months.
- 50,000 individuals used heroin for the first time, and 14,480 deaths from heroin occurred in 2020.

The state of Michigan ranks in the top third nationally for drug-related deaths, with over half due to synthetic opioids, mainly fentanyl.

- In 2020 there were 27.8 drug overdoses per 100,000 population in Michigan compared to 28.3 in the United States.
- In 2020 there were 2,186 opioid overdose deaths in Michigan, which accounted for 79.5% of all drug overdose deaths in the state.
- Prior to the pandemic, 0.4% of people age 12 or older reported opioid dependence or abuse in the past year.  
(KFF, 2021; Michigan State University, 2020)

**Drug diversion** can be defined as any act or deviation that removes a prescription drug from its intended path from the manufacturer to the patient and can occur anywhere along the continuum:



manufacturer, wholesale distributor, retail pharmacy, hospitals and other healthcare organizations, prescribers, healthcare professionals who administer the medication, or the patient for whom the medication is prescribed (ASHP, 2022).

The effort to prevent misuse, abuse, and diversion involves government and regulatory agencies, drug researchers and manufacturers, as well as healthcare institutions and individual clinicians.

### CDC GUIDELINES FOR PRESCRIBING OPIOIDS

In 2022, the CDC updated its guidelines for prescribing opioids for the treatment of pain. Whereas the 2016 guideline focused on recommendations for primary care physicians, the newer guideline expands the scope to additional clinicians whose scope of practice includes prescribing opioids (e.g., physicians, nurse practitioners and other advanced-practice registered nurses, physician assistants, and oral health practitioners). (See “Resources” at the end of this course.)

## Management of Opioid Overdose

Due to their pharmacologic effects, opioids in high doses can cause respiratory depression and death. Most drug-related deaths worldwide are attributable to opioids. An opioid overdose can be identified by a combination of three signs and symptoms, referred to as the *opioid overdose triad*, which include:

- Pinpoint pupils
- Unconsciousness
- Respiratory depression

Combining opioids with alcohol and sedative medication increases the risk of respiratory depression; and combinations of opioids, alcohol, and sedatives are often present in fatal drug overdoses (WHO, 2022).

It is important to consider opiate overdose or toxicity in a lethargic patient with no other identifiable cause. Care of the patient at the scene depends on the vital signs. If the patient is comatose and in respiratory distress, airway control must be obtained prior to any other action. Endotracheal intubation is highly recommended for all patients unable to protect their airways.

If there is a suspicion of opiate overdose, naloxone is administered to reverse respiratory depression. **Naloxone**, an opioid antagonist, rapidly reverses an opioid overdose. One should be aware that naloxone can also cause agitation and aggression when it reverses the opiate.

If the patient is a known drug abuser, the lowest dose of naloxone to reverse respiratory distress should be administered. In the ambulance, the patient may become combative or violent, and use of restraints may be required. If the individual has no intravenous access, naloxone can be



administered intramuscularly, intranasally, intraosseous, or via the endotracheal tube. Data show that the intranasal route is as effective as the intramuscular route in the prehospital setting (Schiller et al., 2022).

**Patient education** includes showing patients, their family members, or caregivers how to administer naloxone. The medication can be given by intranasal spray or intramuscular, subcutaneous, or intravenous injection.

Patients given an automatic injection device or nasal spray should keep the item available at all times. The medication must be replaced when the expiration date passes and if exposed to temperatures below 39 °F or above 104 °F.

Naloxone is effective if opioids are misused in combination with other sedatives or stimulants. It is **not effective** in treating overdoses of benzodiazepines or stimulant overdoses involving cocaine and amphetamines (SAMHSA, 2021).

**Side effects** of naloxone may include an allergic reaction from naloxone, such as hives or swelling in the face, lips, or throat, for which medical help should be sought immediately. Use of naloxone also causes symptoms of opioid withdrawal. Opioid withdrawal symptoms include:

- Feeling nervous, restless, or irritable
- Body aches
- Dizziness or weakness
- Diarrhea, stomach pain, or nausea
- Fever, chills, or goose bumps
- Sneezing or runny nose in the absence of a cold

Since naloxone is a temporary treatment and its effects will wear off, medical assistance must be obtained as soon as possible after administering/receiving naloxone (SAMHSA, 2021).

#### **MICHIGAN'S GOOD SAMARITAN LAW**

Michigan's Good Samaritan Law prevents drug possession charges against those that seek medical assistance for an overdose in certain circumstances. This law makes saving lives the priority during a drug overdose, not criminal prosecutions of illegal drug users (MDHHS, 2022).



## Identifying Drug-Seeking Patients

Most patients who complain of pain are honestly seeking relief from discomfort. Others seek drugs in order to cope with addiction or to provide income. Differentiating between the two can be very difficult.

Drug seekers include people of every age, gender, and socioeconomic status. Often these people initially used prescription drugs for valid medical conditions, and drug-seeking behaviors may have developed as a result of disease progression, undertreatment of pain, tolerance to the medication, or unrecognized addiction. Only a small number of drug seekers do so to divert opioids for illicit sale.

There are some common characteristics that can provide clues to the prescriber of opioids regarding the nature of a patient's intent. The patient who is drug seeking may:

- Come from a location that is far away, perhaps across state lines
- Have seen many doctors in a short period of time
- Present with specific complaints that are often subjective (back pain, headache)
- Bring old medical records they have been carrying around to many different doctors to get a pain prescription
- Use multiple pharmacies
- Claim an allergy to all pain medications except the one they are seeking as well as to diagnostic test contrast medium to avoid tests
- Suggest the medication, dose, and quantity being sought
- Be unwilling to consider any other treatments and does not want to listen to anything the clinician has to say
- Call or show up requesting a prescription at off hours, when the office is closing or right before the weekend/holiday when it is less likely their usual care provider(s) can be reached
- Lie or their story does not make sense (it is imperative to take a detailed history to look for inconsistencies in a made-up story)
- Exaggerate symptoms, with inconsistent behavior from waiting room to treatment room
- Become aggressive when different medications are suggested
- Give false information, such as a fake address or a disconnected phone number
- Be on multiple controlled substances, such as opioids and benzodiazepines
- Be excessively talkative, friendly, or helpful



However, drug-seeking patients with addictions are not the only ones who may engage in these behaviors. Over time, patients with true chronic pain can elicit some of these same behaviors (Girgis, 2021).

### **DRUG DIVERSION AND ADDICTION AMONG HEALTHCARE PROFESSIONALS**

Because healthcare professionals are trusted with others' health and well-being, they are not often suspected of drug addiction themselves; however, they are just as likely as anyone else to become addicted and are at a higher risk for addictive behaviors involving opioids because of their increased access to them.

It is a legal and ethical responsibility for healthcare professionals to uphold the law and to help protect society from drug abuse, and it is a professional responsibility to prescribe and dispense controlled substances appropriately, guarding against abuse while ensuring that patients have medication available when it is needed. Each healthcare professional also has a personal responsibility to protect their practice from becoming an easy target for drug diversion and must be aware of the potential situations where it can occur and the safeguards that can be utilized to prevent such diversion.

When the signs and symptoms of drug abuse are evident in a colleague, it is time to become concerned and involved, taking the following steps:

- Check the agency's written drug and alcohol policy and follow recommendations.
- Document suspicions regarding the colleague, including any complaints, concerns, behavior patterns, or witnesses to behaviors.
- Bring concerns to management.

### **Addressing Pain in Individuals with Substance Use Disorders (SUDs)**

Opioid use for pain management for patients with a history of SUDs may be considered if their use is carefully managed. This involves selecting the appropriate opioid, dosage titration, treatment agreements, and testing and monitoring. Medications should be started at a low dose to ease pain, then titrated to maintain pain relief without decreasing function or risking addiction or relapse.

When patients develop tolerance to the analgesic effects of a particular opioid, providers can consider either escalating the dosage or switching from one opioid to another at a low dose that will effectively relieve pain without increasing the risk of relapse (SAMHSA, 2021).

Before introducing any opioids into a patient's treatment regimen, an assessment is done to determine the patient's risk for developing a substance abuse disorder (SUD).



**Screening tools** available to clinicians include:

- Opioid Risk Tool (ORT)
- Drug Abuse Screen Test (DAST-10 and DAST-20 for adolescents)
- Screener and Opioid Assessment for Patient with Pain-Revised (SOAPP-R)
- Brief Screener for Alcohol, Tobacco, and other Drugs (BSTAD)

These tools, however, commonly result in inaccurate findings and misinterpretations. For instance, since screening tools often rely on a patient's self-report, a patient may falsify responses on questionnaires to avoid detection as a high-risk patient.

Other recommendations include **drug testing**, primarily urine screening. Drug testing offers a critical adjunct to clinical assessment of SUD risk. However, due to the ease with which samples can be adulterated, providers must carefully review their collection protocols and sample validation procedures to ensure optimal accuracy, which may require observed collection (NIDA, 2022; Rosenquist, 2022).

## CONCLUSION

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Healthcare professionals must be aware that all patients have the right to have their pain adequately treated. They must understand the importance of controlling pain, knowing that inadequately managed pain can lead to adverse physical and psychological outcomes for individuals and their families. They must also be knowledgeable about the interventions available for the effective relief of pain, including the use of analgesics, particularly opioids, as well as nonpharmacologic treatment methods.

Nurses are responsible for following guidelines and principles when evaluating the use of controlled substances for pain management and must be aware of the consequences and other issues involved in the use of these substances, which can include opioid misuse, abuse, and diversion.

In order to best carry out this responsibility, it is necessary for all healthcare professionals to continue to expand their knowledge and skills in managing this crucial healthcare issue.







## RESOURCES

American Pain Society

<https://painmed.org/american-pain-society/>

American Society for Pain Management Nursing

<http://www.aspmn.org>

CDC Clinical Practice Guideline for Prescribing Opioids for Pain

[https://www.cdc.gov/mmwr/volumes/71/rr/rr7103a1.htm?s\\_cid=rr7103a1\\_w](https://www.cdc.gov/mmwr/volumes/71/rr/rr7103a1.htm?s_cid=rr7103a1_w)

Guidelines on the management of chronic pain in children (WHO)

<https://www.who.int/publications/i/item/9789240017870>

National Institutes of Health Pain Consortium

<https://www.painconsortium.nih.gov>

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## TEST

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1. Which statement **best** describes the experience of pain?
  - a. Pain and the detection of painful stimuli are the same phenomena.
  - b. Pain does not have an adaptive role.
  - c. An individual who does not express pain is not experiencing pain.
  - d. Pain is always a personal experience.
  
2. Which term is used to describe pain that results when tissue damage produces a stimulus that sends an electrical impulse across a pain receptor?
  - a. Psychogenic
  - b. Nociceptor
  - c. Neuropathic
  - d. Idiopathic
  
3. Which statement is **true** when observing behavior during a pain assessment?
  - a. A patient who is polite, calm, and smiling is not experiencing pain.
  - b. A patient reporting a pain level of 6 to 9 but who is not showing verbal or nonverbal indications of pain is not experiencing pain.
  - c. Most patients who are experiencing pain usually show it by either verbal or nonverbal behaviors.
  - d. Disorientation and irritability always indicate the patient is experiencing pain.
  
4. Which statement is **true** involving the assessment of pain?
  - a. Nonverbal indicators of pain do not include mental status changes.
  - b. A pain assessment does not include the patient's psychosocial history.
  - c. Diagnostic testing may be done to determine the cause or source of pain.
  - d. There are no diagnostic tests that can assist in the assessment of pain.
  
5. For which reason are adjuvant drugs used?
  - a. Enhancing analgesic effects
  - b. Treating central nervous system pain
  - c. Addressing pain caused by primary tissue damage
  - d. Reducing addiction to prescription opioids



6. Which is a mind-body technique for pain management in which the patient learns to bring blood pressure or skin temperature under voluntary control?
- Biofeedback
  - Mindfulness-based cognitive therapy
  - Hypnosis
  - Virtual reality therapy
7. Which is **not** a nursing function included in managing pain?
- Assessing, monitoring, interpreting, and evaluating pain
  - Discontinuing pain management if the patient becomes unresponsive
  - Developing and implementing a plan of care
  - Initiating nonpharmacologic nursing interventions as indicated
8. Which information is included when teaching a patient and family about the use of naloxone for a drug overdose?
- Naloxone is effective for treating overdoses due to cocaine and amphetamines.
  - It is never safe to administer naloxone to pregnant women.
  - There are no known side effects from naloxone use.
  - Both intranasal spray and parenteral forms of the drug are available.

