

# **ELNEC- For Veterans**

END-OF-LIFE NURSING EDUCATION CONSORTIUM

Palliative Care For Veterans

# **FACULTY GUIDE**

## **Module 2 Pain Management**

The End-of-Life Nursing Education Consortium (ELNEC – For Veterans train-the-trainer program and curriculum was developed by the National ELNEC Project Team, a partnership between the City of Hope (Betty R. Ferrell, PhD, RN, MA, FPCN, FAAN, Principal Investigator) in collaboration with the American Association of Colleges of Nursing with updates undertaken by Carma Erickson-Hurt, DNP, LCDR, USN, RET. Curriculum development and national ELNEC-For Veterans train-the-trainer courses were generously funded by the US Department of Veterans Affairs (original courses and ongoing updates spanning 2009-2023).

## Module 2: Pain Management

### Slide 1



## ELNEC- For Veterans

End-of-Life Nursing Education Consortium

Palliative Care For Veterans

## Module 2: Pain Management



*“Pain finds its way everywhere, into my vision, my feelings, my sense of judgment; it’s an infiltration....You have to die so many times before you die.”*

Alphonse Daudet, *In the Land of Pain*, 1840-1897

- There are 4 sections and they are divided into the following categories:
  - Introduction to Pain Management (slides 1-17)
  - Assessment of Pain (slides 18-26)
  - Pharmacological Therapies (slides 27-43)
  - Principles of Pain Management (slides 44-54)

### Teaching Tips:

- Due to the length of this module and the various aspects of pain that must be addressed, the investigators of this curriculum are suggesting two options that you can consider in presenting this material if you have only 45–60 minutes:
  - Give a brief overview of the entire content
  - Present the module in sections over 2–4 different sessions

**Key Learning Objectives**

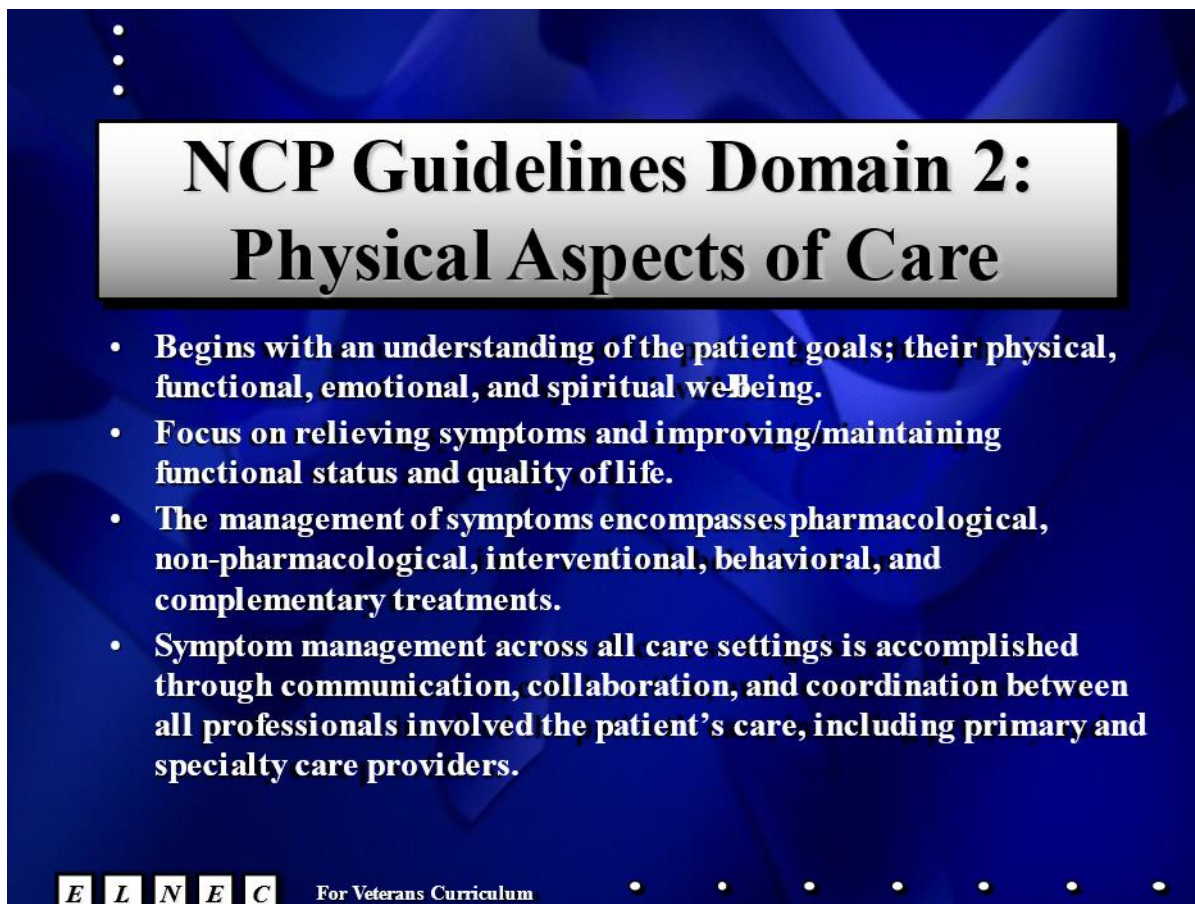
**At the completion of this module, the participant will be able to:**

- 1. Identify barriers to adequate pain relief in serious illness for Veterans across the lifespan.**
- 2. List components of a thorough pain assessment.**
- 3. Describe pharmacological and nonpharmacological therapies used to relieve pain.**
- 4. Discuss the role of the nurse involved with pain assessment and management in serious illness.**
- 5. Describe the VA programs that are dedicated to improving pain.**

**ELNEC** For Veterans Curriculum

At the completion of this module, the participant will be able to:

1. Identify barriers to adequate pain relief in serious illness for patients across the life span.
2. List components of a thorough pain assessment.
3. Describe pharmacological and nonpharmacological therapies used to relieve pain.
4. Discuss the role of the nurse involved with pain assessment and management in serious illness.
5. Describe the VA programs that are dedicated to improving pain.

A presentation slide with a dark blue background and a white central box containing the title. The title is "NCP Guidelines Domain 2: Physical Aspects of Care". Below the title is a bulleted list of four points. At the bottom left of the slide is the logo "ELNEC" and the text "For Veterans Curriculum".

## NCP Guidelines Domain 2: Physical Aspects of Care

- **Begins with an understanding of the patient goals; their physical, functional, emotional, and spiritual well-being.**
- **Focus on relieving symptoms and improving/maintaining functional status and quality of life.**
- **The management of symptoms encompasses pharmacological, non-pharmacological, interventional, behavioral, and complementary treatments.**
- **Symptom management across all care settings is accomplished through communication, collaboration, and coordination between all professionals involved the patient's care, including primary and specialty care providers.**

**ELNEC** For Veterans Curriculum


National Consensus Project (NCP) Guidelines (NCP, 2018):

- **Domain 2: Physical Aspects of Care**
  - *Global:* The palliative care interdisciplinary team (IDT) endeavors to relieve suffering and improve quality of life, as defined by the patient and family, through the safe and timely reduction of the physical symptoms and functional impairment associated with serious illness.
  - *Screening and Assessment:* The IDT assesses physical symptoms and their impact on well-being, quality of life, and functional status.
  - *Treatment:* Interdisciplinary care plans to address physical symptoms, maximize functional status, and enhance quality of life are developed in the context of the patient's goals of care, disease, prognosis, functional limitations, culture, and care setting. An essential component of palliative care is ongoing management of physical symptoms, anticipating changes in health status, and monitoring of potential risk factors associated with the disease and side effects due to treatment regimens.
  - *Ongoing Care:* The palliative care team provides written and verbal recommendations for monitoring and managing physical symptoms.

- *Clinical Implications:* In all care settings, palliative care seeks to improve physical comfort and optimal functional status. Physical concerns, including ongoing access to medications, can be exacerbated as patients transfer across settings of care. Services align with the goals, needs, culture, ages, and developmental status of the patient and family. Expert symptom management focuses not only on physical factors but also emotional, spiritual, religious, and cultural factors, which set the foundation of palliative care and promote comfort and quality of life.

**Module 1 Suggested Supplemental Teaching Material:**

Table 1 (in Module 1 Supplemental Teaching Materials): National Consensus Project Domains and Corresponding National Quality Forum Preferred Practices



## Section I: Introduction to Pain


- **Definition of pain**
- **Multidimensional approach**
- **Barriers to pain assessment and management**
- **Review a case study**
- **VA's commitment to pain management**

**E L N E C** For Veterans Curriculum

- Unrelieved pain is one of the most frequent reasons palliative care consults are made. Unfortunately, about 40% of hospitalized patients experience uncontrolled pain within the final few days of life (Fink et al., 2019). Pain and other symptoms seen in serious illness can usually be relieved, if clinicians have the training and resources to focus on preventing, assessing, and managing pain.
- Pain must be treated using a multidimensional approach (e.g. pharmacologic and non-pharmacologic therapies, additional consults – pain and substance use disorder (SUD) specialists, oncologists, radiation oncologists, mental health professionals, rehabilitation therapies, integrative medicine experts, spiritual guides/chaplains, etc.)
- This should be encouraging to all who begin this education. Nurses need to be educated in order to participate in interprofessional and compassionate care that includes excellent pain assessment and management, preventing Veterans and their families from suffering.

# Pain Is....

- **“An unpleasant sensory and emotional experience associated with, or resembling that associated with actual or potential tissue damage”**
- **“What the person says it is ...”**
- **Biopsychosocial/spiritual/existential model**



(Fink et al., 2019; IASP, 2020; Paice, 2016, 2017, & 2019)

**ELNEC** For Veterans Curriculum

“Pain is an unpleasant sensory and emotional experience associated with, or resembling that associated with actual or potential tissue damage” (IASP, 2020; Raja et al., 2020)

<https://www.iasp-pain.org/PublicationsNews/NewsDetail.aspx?ItemNumber=10475>

[Accessed July 31, 2022]. This definition clarifies the multiple dimensions of pain. Pain is more than a change in the nervous system but is also reflective of the Veteran’s past pain experiences and the meaning of the pain. Six key notes and etymology:

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

- Pain has also been clinically defined as “whatever the experiencing person says it is, existing whenever the experiencing person says it is” (Fink et al., 2019). This definition describes the subjectivity of pain. We cannot know when another is experiencing pain, unless they tell us. Self-report is the most valid measure of pain.
  
- The biopsychosocial model of pain looks at these specific domains (Paice, 2016; Paice, 2017; Paice 2019):
  - Biological: What has caused the pain (disease, tumor, etc.)? What are the treatments? Co-morbidities?
  - Psychological: Anxiety? Anger? Depression? Sleep disorders?
  - Social: External support systems? Financial status? Substance use disorder issues? Values, beliefs? Includes cultural beliefs and rituals
  - Spiritual: Existential distress?



**Cancer and Pain**

**80% of patients with advanced cancer have moderate to severe pain**  
NCI, 2020

**Challenges to pain management:**

- **Fear pain may mean disease progression/recurrence**
- **Not wanting to appear “weak” & have treatment reduced**
- **Not wanting to “distract” their provider**
- **Not wishing to appear to be drug seeking**
- **May believe everything is being done for their pain**

Coyne et al., 2018

**ELNEC** For Veterans Curriculum

- Approximately one-third of persons who are actively receiving treatment for cancer and two-thirds of those with advanced malignant disease experience pain (IASP, 2018; Paice 2019).
- Approximately 80% of patients with advanced cancer have moderate to severe pain and often experience multiple sites of pain (NCI, 2022).
- Today in the US, approximately 14 million people with a history of cancer are living (excludes nonmelanomatous skin cancers) with 2/3 surviving five years or longer after diagnosis. However, approximately 40% of these individuals often live with chronic pain, which affects their quality of life. Assessment of pain at each visit is critical (Paice et al., 2016). To read the full American Society of Clinical Oncology (ASCO) report/guidelines on *Management of chronic pain in survivors with adult cancers*, go to: <https://www.ascopost.com/issues/october-10-2016/asco-clinical-practice-guideline-on-management-of-chronic-pain-in-survivors-of-adult-cancers/>. [Accessed July 31, 2022].
- Challenges to pain management at the end of life (Coyne et al., 2018):
  - Patients believe pain is normal.

- Failure of the healthcare team to see pain assessment/management as a priority.
- Health care team may not be well educated in pain management.
- Veterans fear that their pain means their cancer or other serious illness is progressing/recurring.
- Veterans fear that if they report pain to their oncology provider, they will be seen as “weak” and unable to tolerate the treatment. Therefore, they fear their treatments may be reduced or discontinued.
- Veterans do not want to distract or disappoint their provider by mentioning pain issues.
- Veterans are afraid that if they mention pain, their provider may see them as “drug seeking.”
- Veterans and/or families may be afraid of “addiction” or substance use disorder.
- Veterans may believe that everything possible is being done to alleviate the pain.

Slide 7

**Non-Malignant Diseases & Pain**

- **Assess for co-morbidities that could cause pain**
- **More research is needed**

Fink et al., 2019; Paice, 2019

**ELNEC** For Veterans Curriculum

- Remember that Veterans experience non-malignant pain, too (i.e., cardiac, renal, pulmonary, hepatic, neurologic, HIV, etc.) (Fink et al., 2019; Paice, 2019).
- Comorbidities may include diabetes, osteoporosis, previous surgeries and other conditions.

**Effects of Unresolved Pain**

**Pain associated with depression in patients with heart failure**  
Pantilat et al, 2016

**Inadequate pain relief may hasten death by:**

- **Increased physiological stress**
- **Decreased immunity**
- **Decreased mobility**
- **Increased possibility of pneumonia and other infections**
- **Increased possibility of thromboembolism**
- **Increased workload of heart and lungs**  
Paice, 2019

**ELNEC** For Veterans Curriculum

- In a recent study of patients with heart failure, pain was associated with depression, which affected quality of life (Pantilat et al., 2016).
- The negative effects of unresolved pain are numerous (Paice, 2019).

## Barriers to Pain Relief

- Professionals
- Healthcare systems
- Patients/Families

Coyne et al., 2018

**E L N E C** For Veterans Curriculum

- Barriers related to healthcare professionals (Coyne et al., 2018):
  - Inadequate knowledge of pain assessment and management.
  - Poor assessment of pain due to lack of time
  - Concern about regulation of controlled substances
  - Fear of patient SUD/diversion
  - Concern about adverse effects of analgesics
  - Concern about patients becoming tolerant to analgesics
  - Fear of legal issues
  - Exclusion of effective concurrent nonpharmacologic measures
- Barriers related to the healthcare system (Coyne et al., 2018):
  - Workforce issues such as inadequate staffing
  - Low priority given to pain treatment
  - Inadequate reimbursement
  - Problems of availability of treatment or access to it. Opioids are often unavailable in pharmacies in areas serving vulnerable populations, such as people of color, as well as

rural areas. Nurses should work to ensure that necessary medications are available for patients, regardless of their environment.

- Lack of time provided for staff to become educated.
- Lack of support for adequate pain education and resources for challenging pain cases.
- Barriers related to patients/families (Coyne et al., 2018):
  - Reluctance to report pain, fearing the disease is worse
  - Concern that reporting pain may distract physicians from treatment of underlying disease
  - Concern about not being a “good” patient
  - Reluctance to take pain medications
  - Fear of SUD or of being thought of as an “addict”
  - Patients’ and families’ belief that pain is a natural part of illness and cannot be relieved
  - Worries about unmanageable adverse effects
  - Concern about becoming tolerant to pain medications
  - Need or belief to be stoic
  - Poor communication with older adults. They may deny pain, but when asked specifically about such sensations as “aching,” “hurting,” “discomfort,” older adults may respond positively as the older adult may consider pain to be a part of aging.

**Teaching Tip:** Ask participants to state the three most common barriers they experience in managing pain. Discuss commonalities and creative approaches that have been successful in overcoming barriers.

# Strategies to Overcome Challenges in Pain Management

- **Education of healthcare professionals**
- **Overcoming system based issues**
- **Management**
  - Use current guidelines
  - Use appropriate analgesics
  - Monitor outcomes
  - Attend to adverse effects
- **Education of Veterans and families**
  - Set realistic goals- most pain can be alleviated
  - Provide psychosocial support
- **Research**

Coyne et al., 2018, Kwon, 2014

**ELNEC** For Veterans Curriculum

- While there are many barriers to pain assessment and management, it is important to focus on ways barriers can be overcome. Think of overcoming these barriers multidimensionally (Coyne et al., 2018; Kwon, 2014).
  - **Education of healthcare professionals:** Attend didactic lectures, make rounds with pain specialists and those from palliative care, engage in continuing education programs.
  - **Overcoming system-based issues:** Advocate for an increase in the availability of pain and palliative care services.
  - **Assessment:** Use validated pain tools for screening pain and monitoring it (e.g. Numeric rating scale [NRS]), evaluate pain physically, functionally, psychosocially, and spiritually (e.g. Edmonton Symptom Assessment or Edmonton Classification System for Cancer Pain), evaluate co-morbidities and the interaction with pain and its treatment, continued pain assessment with regular follow-up appointments, etc.
  - **Management:** Use current guidelines (e.g. American Society of Clinical Oncology [ASCO], World Health Organization [WHO], National Comprehensive Cancer Network [NCCN], and National Consensus Project [NCP] Guidelines for Quality Palliative Care), choosing appropriate analgesics/adjunct analgesics, monitoring outcomes after

analgesics have been initiated, anticipating/treating adverse effects of analgesics, collaborating with other specialties, and providing an interprofessional approach.

- **Education of patients and families:** Set realistic goals with patients/families and inform them that most cancer pain can be addressed. Provide psychosocial/spiritual support as needed. Provide education regarding safe and effective use of pain medications, as well as safe storage and disposal.
- **Continue with pain related research** and adhere and adjust policies and procedures from the findings of the research.



**Goals of Pain Management**

- **Providing adequate pain and symptom control**
- **Decrease distress caused by pain in the Veteran and family**
- **Provide an acceptable sense of control**
- **Relieve caregiver burden**
- **Strengthen relationships**
- **Optimize quality of life**
- **Enhance meaning of life and illness, providing personal growth**

NCCN, 2020; Swarm et al., 2019

**ELNEC** For Veterans Curriculum

- When orchestrating excellent pain assessment and management, it is vital to have goals clearly articulated. The NCCN has outlined the following goals in assessing and managing pain (NCCN, 2020; Swarm et al., 2019):
  - Pain and other symptoms will be controlled.
  - Distress caused by pain will be decreased for both the patient and his/her family (caregiver).
  - The patient will have a sense of control.
  - Caregiver burden will be relieved.
  - Relationships will be strengthened.
  - Quality of life (QOL) will be optimized.
  - The meaning of life and illness will be enhanced as the patient experiences personal growth during this time.
- Although these are specific to cancer, these goals can be applied to all pain experienced within palliative care settings.

**Pain and Suffering in Serious Illness**

- **Existential distress: Spiritual/religious**
- **Dimensions of quality of life (QOL)**
- **Requires interprofessional approach**

Ferrell & Coyle, 2008

**ELNEC** For Veterans Curriculum

- Existential distress, fear of the dying process, and grief may alter expressions of pain. What role does spirituality/religion play in a Veteran’s perception of pain and suffering? Role of forgiveness? Meaning of illness: Role of acceptance that death is near? Suffering transcends physical, psychological, social and spiritual domains.
- Pain in the seriously ill is complex and includes dimensions of psychological, social, and spiritual distress, along with physical pain (Ferrell & Coyle, 2008).
- Management of pain in serious illness must be based on an interprofessional approach. “When pain cannot be prevented, relief is imperative” (Paice, 2016).

## Patients at Risk for Undertreatment

- **Older Veterans**
- **Non-verbal or cognitively impaired**
- **Veterans who deny pain**
- **Non-English speaking**
- **Cultural considerations**
- **History of addictive disease**

**E L N E C**

For Veterans Curriculum

- Older adults (Long, 2019):
  - Pain is often not assessed in older adults. In nursing homes pain rates range from 40% to 85%, with as many as 25% receiving no intervention for pain relief (Carvalho et al., 2018).
  - 65%+ of nursing home residents with cancer had pain (Carvalho et al., 2018).
  - Older adults are less likely to admit to having pain because of fear of SUD, or loss of control. Older adults commonly experience chronic pain typically due to osteoarthritis, cancer, diabetic neuropathy, herpes zoster, and osteoporosis.
  - Older adults are less likely than younger people to obtain relief from chronic pain. Achieving good pain relief is complicated by co-morbid disease and increased risk of adverse drug reactions. This is in large part due to clinician factors: lack of knowledge in pain management for the older adult, and fear of prescribing opioids in this population. Older patients are often under-dosed. Start at slightly lower doses but titrate aggressively. Many older adults may eventually require doses in the same range as younger adults (Bettinger et al., 2017; Galicia-Castillo & Weiner, 2019).
- Non-verbal or cognitively impaired persons/unconscious patients:
  - Pain is undetected and untreated more often in older adults. (Bettinger et al., 2017; Galicia-Castillo & Weiner, 2019; Herr et al., 2019). This is often due to lack of being

able to verbalize. Non-verbal behavior indicators of pain especially in older adults are: confusion, changes in behavior, combative behavior, and impaired mobility.


- For nursing home residents with moderate-to-severe dementia (61.5%), 30.7% of patients were treated with analgesics (Carvalho et al., 2018).
  - In long-term care, the higher the behavioral rating of disorientation, withdrawal and functional impairment; the less analgesics the patient seems to receive.
  - Aggressiveness and/or resisting care may occur because the patient is guarding against movement that may cause pain.
- Patients who deny pain. They may be stoic and see verbalizing/showing pain as weakness.
  - Non-English speaking. All communication should occur in a language the patient/family understands. Efforts should be made to have translation services available to the Veteran/family and staff (NCP, 2018). Although Veterans may speak English they may have family members who have another primary language, or have limited English vocabulary.
  - Cultural considerations
    - The response to pain by the Veteran may be influenced by the “military mindset” (Dyer, 2021). The stoicism occurs as a result of military training and acculturation which focuses on setting aside the pain to accomplish the mission.
    - Determine what other interventions (i.e., music, prayer, physical approaches) that can be used with pain medication. Assess comfort with pain management and what words the patient is comfortable using to discuss pain. See Module 5 for more details about the role of culture in serious illness.
  - Uninsured and underserved individuals
    - Cost is a major barrier to providing effective analgesia in serious illness. Many analgesics (particularly newer or long-acting formulations) can be extremely expensive.
    - At times, drugs are selected based upon cost rather than other factors. Generic immediate release formulations are usually less expensive. Nonpharmacologic and integrative therapies are often unavailable due to cost for those who are uninsured or with limited insurance.
    - Persons with a history of substance use disorder (SUD) (Paice, 2019)
      - Thorough assessment of the pain in the person with a current or past history of SUD is critical. Patients can be triaged by risk for potential misuse based upon a comprehensive risk assessment.
      - Use an interprofessional team approach. In some situations, including SUD counselors and other experts in this field as consultants may be helpful. Unfortunately, many of these individuals are not experts in pain control; thus, collaboration is essential between pain professionals and SUD specialists. Access to SUD physicians and therapists is challenging due to limited workforce and reimbursement issues.
      - Realistic goals must be established. Recovery from SUD is impossible, if the patient does not seek this rehabilitation.
      - Limit setting and consistency are essential.
      - Provide a structured and safe environment for patients and their support persons.

- Comorbid psychiatric disorders are common, particularly depression, personality disorders, and anxiety disorders. Treatment of these underlying problems may reduce relapse or aberrant behaviors and may make pain control more effective.
- Tolerance must be considered; thus, opioid doses may require more rapid titration and may be higher for people who have misused opioids. Optimize use nonopioids, such as NSAIDs and adjuvant analgesics, along with opioids. Prevent withdrawal from opioids, benzodiazepines, and alcohol. Concurrent misuse of several substances is not uncommon.

**Module 2 Suggested Supplemental Teaching Materials:**

Figure 4: Checklist of Nonverbal Pain Indication

Figure 5: Pain Assessment IN Advanced Dementia (PAINAD)



## Sound Familiar?

- **Mr. Lee is a 72 year old Marine Corps Veteran who has just returned home after having his right shoulder “pinned” due to a fall**
- **Has a history of CHF, emphysema & Type II diabetes**
- **His homecare nurse notes various sites and types of pain (Pain at incision is 7/10, phantom pain from LBKA 8/10 and post herpetic neuropathy from shingles 5/10)**

**E L N E C** For Veterans Curriculum

It is important to note that many patients will have multiple sites of pain with varying degrees of intensity and duration.

### **History:**

Mr. Lee is a 72-year-old Marine Corps Veteran. He served 12 years in the Marine Corps. He has a history of congestive heart failure (CHF), emphysema, and type II diabetes. Five days ago, he fractured his clavicle and proximal humerus due to a fall at home. He has just returned home from the hospital, having the humerus pinned. He declined participation in rehabilitation due to exhaustion and difficulties with transportation. Unfortunately, he is still having moderate to severe pain (pain score of 7 out of 10).

Two years ago, Mr. Lee underwent a left below the knee amputation (LBKA). He states he has phantom pain (pain score 8 out of 10). In addition, last year he had shingles and today, he still reports post herpetic neuropathy (PHN) (pain score of 5 out of 10). The only pain medication he was sent home with today was oxycodone and acetaminophen (Percocet), 5/325 mg 1 tablet by mouth every 6 hours prn. He has no other pain medication at home. He was given 30 tablets.

In the past 6 months, Mr. Lee has made three “911 calls” to be taken to the emergency room because of severe dyspnea due to emphysema and CHF. Most recent ejection fraction is 35%.

Because he lives alone and has other health issues, a homecare nurse will be following him once a week for the next four weeks.

**STOP AND CONSIDER:**

- Does this Veteran sound familiar?
- Where would you begin to manage these various sites/types of pain?
- How would you go about orchestrating/coordinating these changes? (Various specialties involved: Orthopedics, family practice, cardiologist, pulmonologist, etc)
- Would this Veteran benefit from palliative care? If so, how?

# Veteran Culture and Pain Assessment and Management



- **Language**
- **Health literacy**
- **Concept of pain and suffering**
- **Correct labeling of pain: Pain versus hurt**
- **Pain is more common in Veterans than the general population**
- **Chronic pain is more common in younger Veterans (CDC, 2020)**
- **Nursing implications**

**E L N E C**

For Veterans Curriculum

- A pain assessment should begin by knowing the preferred language of the patient, assessing health literacy, and identifying any fears related to pain medications (NCP, 2018).
- The meaning of pain influences assessment, as religious/spiritual practices and ethnicity may determine a patient's willingness to accept pain management. In some cultures, enduring pain and suffering promises a better afterlife (Cormack et al., 2019).
- If you ask the patient if they have pain, they may respond "no," as it may be culturally unacceptable, and the person would appear weak if they admitted they had pain. Therefore, in order to obtain a more accurate response, ask if the patient is uncomfortable or "hurts" or "aches" (Cormack et al., 2019; Mazanec & Panke, 2016).
- Prevalence of severe pain is strikingly more common in Veterans than in members of the general population, particularly in Veterans who served during recent conflicts. (Nahin, 2017)
- During 2019, military veterans aged  $\geq 20$  years were more likely to have chronic pain than were nonveterans (31.5% versus 20.1%). By age group, the likelihood of having chronic pain was higher among veterans than nonveterans for those aged 20–34 years (27.1% versus 9.4%), 35–49 years (27.7% versus 17.7%), and 50–64 years (37.2% versus 26.3%). Among those aged  $\geq 65$  years, prevalence of chronic pain did not differ significantly by veteran status (30.8% among veterans versus 31.0% among nonveterans). Among nonveterans, the



prevalence of chronic pain increased with age. Among veterans, those aged 50–64 years had the highest prevalence of chronic pain. (CDC, 2020)

- Nursing implications: Nurses working with Veterans of these recent conflicts must be particularly diligent in assessing and managing pain, being aware that multiple sites of pain may exist. For many, this will continue through the rest of their lives. For these Veterans this pain must be addressed in hospice, palliative care, as well as other clinical settings. Though nurses may see fewer younger Veterans for end-of-life care, these patients may be seen more frequently through pain and palliative care service.

**VA Approach to Pain**

- **2008 VA Pain Care Act**
- **2009 VA Pain Management Directive**
- **2017 Opioid Safety Initiative**
- **93% of VA facilities offer complementary and integrative health (CHI) options**

**ELNEC** For Veterans Curriculum

- In the last 15 years the VA has experienced a sizeable shift in its approach to pain management.
- In response to the growing number of newly injured veterans returning from conflicts in Iraq and Afghanistan, Congress passed the VA Pain Care Act in 2008 which required that the VA improve pain care and train clinicians appropriately.
- In 2009 The VA Pain Management Directive introduced the Stepped Care Model, which emphasizes an interdisciplinary approach to pain management.
- The Opioid Safety Initiative in 2017 was a collaboration between the VA and Department of Defense (DoD) to develop clinical guidelines on opioid prescribing focused on reducing opioid use in the VA.
- These shifts in pain care have led to new pain management strategies that rely on multidisciplinary teams and nonpharmacologic pain treatments (Maddox et al., 2020)
- 93% of VA facilities offer complementary and integrative health (CIH) options but services offered vary between facilities. (Maddox et al., 2020)

## **Nurse's Ethical Responsibility**

- **Assessing and managing pain is an ethical and legal principle for all nurses.**
- **Ethical tenets: 80% experience acute unrelieved postoperative pain**
  - **Beneficence: Duty to benefit**
  - **Nonmaleficence: Duty to do no harm**
  - **Autonomy: The right to self-determination**
  - **Justice: Equal and fair access to pain management**


**ELNEC** For Veterans Curriculum

- Nurses have an ethical responsibility to relieve pain and suffering (ANA, 2018). Nurses caring for patients with serious illness must recognize that the provision of medications to relieve suffering is consistent with accepted ethical and legal principles.
- The American Society for Pain Management Nursing (ASPMN) and Hospice and Palliative Nurses Association (HPNA) hold the position that “nurses and other health care providers must advocate for effective, efficient, and safe pain and symptom management to alleviate suffering for every patient receiving end-of-life care regardless of their age, diseases, history of substance misuse, or site of care. This position statement is directed to the special needs of those individuals with a serious illness and a prognosis of days to months” (Coyne et al., 2018).

**\*This Concludes Section I**

## Section II: Pain Assessment

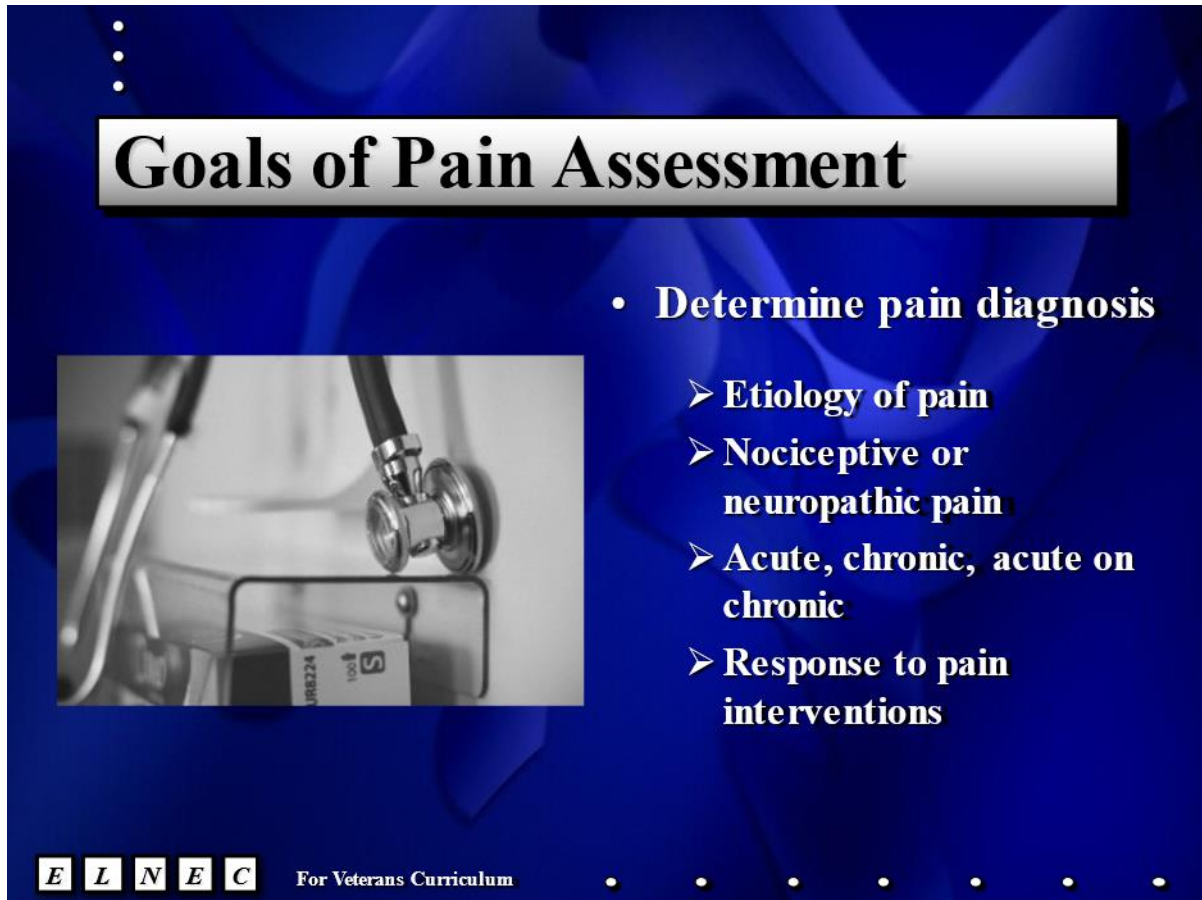
- **Pain History**
  - Acute
  - Chronic
- **Physical examination**
- **Laboratory/diagnostic evaluation**



**E L N E C** For Veterans Curriculum


- Obtain a comprehensive pain history
  - Determine beliefs about pain that might interfere with reporting pain.
  - Self-report of pain is “gold standard” (if unable to self-report, observe for non-verbal behaviors related to pain)
- Conduct a current and thorough physical examination.
- Evaluate laboratory and diagnostic testing. In addition, other aspects of pain assessment must be reviewed:
  - Importance of assessment and reassessment
  - Common pain syndromes
  - Total pain (psychological, emotional, social, and spiritual)
  - Existential suffering
  - Undertreatment of pain and those at risk
  - Importance of excellent communication
  - Tolerance
  - Physiological and psychological dependence
  - History/risk of substance use disorder

- Health status
- Support systems
- Documentation
- Communication with the interprofessional team



## Goals of Pain Assessment

- **Determine pain diagnosis**
  - Etiology of pain
  - Nociceptive or neuropathic pain
  - Acute, chronic, acute on chronic
  - Response to pain interventions



**E L N E C** For Veterans Curriculum

- Many patients have multiple pain sites. The site of pain can be referred. For example, for patients with liver metastases pain can exist in the right upper quadrant of the liver as well as in the shoulder.
- Pain can be grossly divided into three main types: nociceptive, neuropathic and visceral (Fink et al., 2019; Paice, 2017).
  - Nociceptive pains are usually related to damage to bones, soft tissues, or internal organs. Nociceptive pain is often described as aching or throbbing. Arthritis is an example of somatic pain. Neuropathic pain is generally due to damage to the central nervous system. Patients describe the pain as burning, tingling, electrical, or shooting. Examples include diabetic neuropathy or postherpetic neuropathy (shingles).
  - Visceral pain is often diffuse and described as squeezing or cramping. Examples include liver metastases or pancreatitis pain.
- Acute vs. chronic
  - Acute pain is generally defined as pain lasting less than one to three months.
  - Chronic pain persists for longer than three to six months.

- Some pain syndromes consist of chronic pain with acute exacerbation. Sickle cell disease results in this type of complex phenomenon.
- When patients report “pain all over,” this generally refers to total pain or existential distress (unless there is an underlying physiologic reason for pain all over the body, such as myalgias). Assess the patient’s emotional state for depression, fear, anxiety, or hopelessness.
  - It is important to quantify pain using a standard pain intensity scale. One of the most common and simplest tools is a numerical rating scale that asks the patient to rate their pain on a 0 to 10 scale; 0 indicates no pain, and 10 represents the worst pain imaginable.
  - When patients cannot conceptualize pain using a number, simple categories can be useful (e.g., no pain, mild, moderate, severe). Scales using faces can be useful for children and adults who are cognitively impaired.

# Pain Assessment

- **Location**
- **Intensity**
- **Quality**
- **Temporal factors**
- **Aggravating/alleviating factors**
  - **Pharmacologic**
  - **Nonpharmacologic**
  - **Integrative**

**ELNEC** For Veterans Curriculum

**Location:** Where is the pain located (in many cases, there are multiple sites and etiologies). Does the pain radiate to other parts of the body. Examples of radiation include a vertebral body compression fracture in the lumbar region causing pain extending down leg or referral is when the person experiencing a myocardial infarction feels pain and pressure in the left arm and jaw.

**Intensity:** – A variety of tools are available to measure intensity in different populations. Common scales include the Numeric Rating Scale (0-10) or “mild, moderate, severe”. The same tool should be used with each reassessment.

**Quality:** helps identify nociceptive, neuropathic or visceral pain, which informs the treatment plan

Nociceptive pain – aching, throbbing

Neuropathic pain – burning, tingling, electrical, shooting

Visceral pain – cramping, squeezing, pressure

**Temporal factors:** Onset, duration, frequency and patterns of the pain. Is this acute or chronic pain or acute on chronic? One example is the patient with chronic bone pain from avascular necrosis who now has mucositis related to chemotherapy.



Aggravating/alleviating factors: what incites or worsens the pain and what helps relieve the pain.

Past and current therapies: what had been effective (include prescription and over-the-counter medications; herbal therapies; recreational drug; others); did any cause adverse effects.

- Question patients regarding what has been prescribed and what they are actually taking (and the reasons for any disparity).
- Ask patients specifically about use of over-the-counter drugs, recreational drugs, and herbal products, as they may believe these are not important or are reluctant to share this information.
- Inquire about physical, psychological, integrative and other nondrug therapies to learn what has been tried and where there may be opportunities.
- 

(Paice, 2019; Fink et al., 2019; NCCN Guidelines, 2022; Swarm et al., 2019)

## Pain Assessment (cont).

- **Meaning of pain**
- **Associated symptom**
- **Function**
- **Risk assessment**
  - **Past/present use of licit and illicit substances**
  - **Family history**
  - **History of abuse**
- **Goals of care**

**ELNEC** For Veterans Curriculum

- The meaning of the patient's pain can profoundly affect pain perception in serious illness. Many see pain as punishment for something they have done (or failed to do) earlier in their lives. Reframing may help relieve patients of these beliefs, often resulting in improved comfort.
- Assess for associated symptoms such as fatigue, sleep disorders, and others that might affect be related to the pain experience. Psychosocial factors such as anxiety, depression, caregiver/family concerns, financial worries, isolation, loss of independence, and fear of death should all be explored when performing a pain assessment.
- Assess the patient's functional status. Determine how much impairment is related to pain or the serious illness diagnosis. (Paice, 2019). Assess muscle tone, coordination and reflexes as well as their gait and ability to walk. Evaluate the patient's ability to perform independent activities of daily living. Challenges in these areas may precipitate a referral for physical or occupational therapy along with consulting social work to ensure safe care in the home.
- Assess current and past use of licit (alcohol, tobacco, cannabis) and illicit substances (non-prescription opioids [e.g., heroin, fentanyl], non-medical use of prescription opioids [buying

prescription opioids, using opioids in a way other than prescribed], using other substance such as cocaine or methamphetamine. (Compton, et. al., 2019).

- Inquire about the patient’s goals for pain treatment. Remarks such as “complete pain control” may require reframing. A question that might be helpful: “If we can do a better job you’re your pain management, what will you be able to do that you cannot now?” This focuses the outcome on functional changes, which are measurable.

(Paice, 2019; Fink et al., 2019; NCCN Guidelines, 2020; Swarm et al., 2019)

**Pain Assessment-PQRST**

- **P- Precipitating factors/palliating factors/previous treatment**
- **Q-Quality**
- **R-Region/radiation**
- **S-Severity**
- **T-Temporal**

**ELNEC** For Veterans Curriculum

- One of several mnemonics that guide pain assessment is “PQRST “:

P: Precipitating factors  
Palliating factors  
Previous therapy

Q: Quality

R: Region/radiation/referral


S: Severity

T: Temporal

(Paice, 2019; Fink et al., 2019; NCCN Guidelines, 2020; Swarm et al., 2019)

**Physical Examination**

- **Observation**
- **Palpation**
- **Auscultation**
- **Percussion**



**ELNEC** For Veterans Curriculum

- Observe for non-verbal cues that might suggest pain, including withdrawal, fatigue, grimaces, moans, and irritability, particularly in the patient unable to report his/her pain.
- Examine sites of pain for trauma, skin breakdown, changes in bony structures, etc.
- Palpate the areas for tenderness.
- Auscultate for abnormal breath sounds or bowel sounds that could signal pneumonia (e.g., crackles, rhonchi, decreased breath sounds) or bowel obstruction (e.g., hyperactive bowel sounds with obstruction or silent bowel sounds with ileus) or other syndromes.
- Percuss the area for fluid accumulation or gas (especially for abdominal pain to rule out obstruction, ascites, etc.).

**Module 2 Suggested Supplemental Teaching Materials:**

Figure 2: Dermatome Chart

Figure 3: Pain Intensity Scales

## Laboratory/Diagnostic Evaluation



- Rule out potentially treatable causes
- Need for additional laboratory or radiographic evaluation is directed by the goals of care

ELNEC


For Veterans Curriculum

- The need for additional laboratory or radiographic evaluation is directed by the goals of care for the patient. For example, a patient may complain of abdominal pain and physical examination is inconclusive. An X-ray or CT scan may differentiate between pain due to ascites (potentially relieved with a paracentesis that can be performed at the bedside) or pain due to obstruction (where a venting gastrostomy may be useful, or the patient may simply wish to avoid enteral intake of fluid and food).
- Laboratory tests may include calcium to rule out hypercalcemia as a cause of delirium rather than pain medication. Regardless of the test or its invasive nature, the clinician must constantly ask, **“How will the course of therapy change by the findings of this test?”**
- Assess for co-morbidities that impact pain management plan: renal and hepatic function, thrombocytopenia, and need for alternative routes of administration.
- Again, be aware of the patient’s goals of care.
  - Will the patient be able to lie on a hard table during an MRI or CT-scan?
  - What about the cost of the exam?

- Will the cost cause undue burden to the patient/family? Careful consideration should be given before ordering/performing these tests, if you do not plan to alter the plan of care after receiving the test results.

# Reassess

- **Changes in pain**
- **Response to analgesics**
  - Relief
  - Adverse effects
- **Make pain visible**



**E L N E C** For Veterans Curriculum

- It is critical to reassess pain regularly, with any changes in pain, or with changes in the analgesic regimen. The regularity of pain assessment is dependent upon the degree to which the patient's condition or pain state is changing. More rapidly, progressive disease demands more frequent assessment. Patients should be coached to report any changes in their pain.
- Pain relief can be assessed using a 0-10 scale, with 0 meaning no relief, and 10 meaning complete relief. When patients are unable to use this scale, options include "no relief," "a little relief," "moderate relief," or "complete/total relief."
- When attempting to determine the success of a new analgesic the patient may be asked, "After taking that pill (or liquid, shot, etc.), how much pain relief did it provide?" If the patient is able to articulate the amount of relief, then ask, "How long did you get relief?" This provides evidence regarding the duration of effect.
- Pain must be made visible. Adding pain intensity scores to the same part of the chart where temperature, pulse, and other vital signs are recorded has been shown to improve pain relief.



- A useful strategy for reassessment is asking patients/caregivers to keep a pain diary. Nurses can teach the patient or their family members to record daily pain responses (e.g., intensity scores, pain relief, times and doses of breakthrough pain medications given, additional comments about activities or other factors).

**Communicating Assessment Findings**

- **Communication improves pain management**
- **Describe location, intensity, limitations, response to treatments**
- **Describe effect on function**
- **Document medications, efficacy, and adverse effects**
- **Ask for recommendations, but be ready to make recommendations**
- **Be objective**

Fink et al, 2019; Paice, 2016

**E L N E C** For Veterans Curriculum

- Clear objective communication (both verbally and in writing) of the pain assessment findings will ultimately improve pain management (Fink et al., 2019; Paice, 2016). This is a critical role for nurses.
- Describe the location, intensity of pain, the functional limitations that result from the pain (e.g., the patient cannot tolerate radiation therapy treatments), and the response from the current analgesic regimen (e.g., 50% relief, no adverse effects). This gives other healthcare professionals essential data when modifying the treatment plan. This also allows the nurse to serve as a patient advocate.
- Documentation should take place in a visible area of the record. It is also important to document pain reassessments.
- Ask the interprofessional team for suggestions. However, always be ready to make recommendations that you believe are appropriate. You are advocating for your patient!
- Be objective in all recommendations and conversations.

**Module 2 Suggested Supplemental Teaching Material:**


Figure 1: Communicating Pain Assessment Findings

**\*This Concludes Section II**

⋮

## Section III: Pharmacological Therapies

- **Nonopioids**
- **Opioids**
- **Adjuvants**
- **Routes of Administration**




**ELNEC** For Veterans Curriculum

• • • • • •

- Analgesics can be classified generally in classes of nonopioids, opioids, or adjuvants.
- Close collaboration with physicians, advanced practice nurses and pharmacists is essential to optimize use of pain medication.

# Nonopioids




- **Acetaminophen**
  - **Analgesic and antipyretic**
  - **High doses can cause liver dysfunction**
  - **Use cautiously with older adults**

**ELNEC** For Veterans Curriculum

- Acetaminophen: Used in management of mild pain or as an addition to other analgesics for more intense pain.
  - Actions
    - Analgesic
    - Antipyretic (used as an adjuvant to any chronic pain regimen) (Paice, 2016; Paice, 2019)
  - Adverse effects
    - Can cause liver dysfunction in routine doses higher than 2000 – 3000 mg/day when used chronically in patients with normal liver. Lower doses or stopping acetaminophen is warranted in hepatic dysfunction and / or significant, regular alcohol misuse.
    - Acetaminophen is present in many products. Consider the amount of acetaminophen in these compounds when choosing these drugs for pain. For a listing of medications containing acetaminophen, go to <https://www.fda.gov/drugs/drug-safety-and-availability/fda-drug-safety-communication-prescription-acetaminophen-products-be-limited-325-mg-dosage-unit#list> [Accessed July 31, 2022]. It is important to ask adults about all medications that they may be taking to determine total dosage of acetaminophen.

# Nonopioids: Role of NSAIDs

- **Antipyretic, anti-inflammatory, and analgesic**
- **Toxicity**
- **Adverse effects**



Paice, 2019

**E L N E C** For Veterans Curriculum

- Nonsteroidal anti-inflammatory drugs (NSAIDs): Examples: Aspirin, ibuprofen, naproxen. NSAIDs are anti-inflammatory, analgesic and antipyretic. They are used primarily for nociceptive or musculoskeletal pain (Paice, 2019).
  - Inhibit prostaglandins by blocking cyclooxygenase. Prostaglandins are rich in the periosteum of the bone and in the uterus, as well as other locations.
  - Mild to moderate pain.
  - May be able to decrease opioid use in the setting of moderate to severe pain.
  - Treat inflammation relieving bone pain and dysmenorrhea and in many other pain syndromes.
- The selective cyclooxygenase-2 inhibitors were hypothesized to provide analgesia with reduced risk of gastrointestinal bleeding. The only drug approved in the US is celecoxib. Despite short-term gastrointestinal benefits (6 months), this benefit did not appear to continue with longer term use. Additionally, there was no reduction in renal effects commonly seen in older NSAIDs. Furthermore, the analgesic effect was not superior when compared to nonselective NSAIDs.

- Unlike most opioids, NSAIDs have a ceiling effect. Increasing the dose beyond a certain point will not increase analgesia and, will only increase the risk of adverse effects.
- Maximum daily doses of most frequently used NSAIDs:
  - Aspirin: 4000 mg/24 hours (300 mg–900 mg every 4–6 hours)
  - Ibuprofen: 2400 mg/24 hours
  - Naproxen: 1375 mg/24 hours
  - Ketorolac: 120 mg/24 hours for IV/IM: 40 mg/24 hours for po

**NOTE:** These doses may not be appropriate for the older adult, those with bleeding gastric disorders, and/or those with renal insufficiency. These are **ADULT doses and NOT PEDIATRIC doses.**

Adverse effects:

- NSAIDs produce significant gastric toxicity through local effects and systemic effects. Locally, NSAIDs migrate through the gastric mucous and into epithelial cells that line the stomach. The reduction in mucous exposes the gastroduodenal mucosal lining to injury by substances within the gut (such as acid, pepsin, and bile salts) and agents introduced into the gastrointestinal tract (such as alcohol). The decreased blood flow and epithelial growth inhibits repair when damage occurs. As a result of these local and systemic factors, gastrointestinal bleeding is common, especially in the elderly, in persons at risk for ulceration, and in combination with other drugs (such as corticosteroids) (Paice, 2019). In the upper gastrointestinal tract, NSAIDs can cause nausea, vomiting, symptomatic ulcers, GI bleeding, and ulcer perforation. “Patients taking oral NSAIDs for  $\geq 5$  days at least twice annually have a 4.21 relative risk of gastrointestinal events compared to those who do not” [take NSAIDs] (Merriam & Claxton, 2015). This risk is increased when patients also take aspirin daily for cardio protection. Proton pump inhibitors (PPIs) can prevent GI ulceration (i.e. Omeprazole [Prilosec], Esomeprazole [Nexium], Lansoprazole [Prevacid], etc).
- Platelet aggregation is inhibited by NSAIDs; thus, bleeding is a potential risk. This effect is reversible by stopping the NSAID. However, aspirin produces an irreversible effect on platelets. Thus, aspirin must be discontinued at least seven days prior to an invasive procedure.
- Renal dysfunction can occur due to NSAIDs, especially when patients are dehydrated (thus, hydration may counteract this effect).
  - It may be difficult to assess hydration during serious illness. Patients with cachexia and low protein stores will demonstrate peripheral edema, if they spend time up in a chair or ambulating. If recumbent, edema may be seen in the fingers or sacral region. Despite having fluid in the peripheral tissues, these patients may be intravascularly depleted, and thus, dehydrated. Dry mouth, concentrated urine, or low blood pressure may be indicators. Replacing fluid with water will result in increased peripheral edema. Fluid replacement should include fluids that contain salt or other electrolytes, such as sports drinks, salty soups, club soda, vegetable juice, or other liquids.

- The risk of myocardial infarction or stroke is increased with the use of NSAIDs, particularly in those with preexisting risk factors. The risk of adverse effects increases with the concurrent use of NSAIDs and corticosteroids as well as NSAIDs with daily low dose ASA. <https://www.fda.gov/drugs/drug-safety-and-availability/fda-drug-safety-communication-fda-strengthens-warning-non-aspirin-nonsteroidal-anti-inflammatory> [Accessed July 31, 2022].

## Opioids: Most Commonly Used in Palliative Care

- Buprenorphine
- Codeine
- Fentanyl
- Hydrocodone
- Hydromorphone
- Methadone
- Morphine
- Oxycodone
- Oxymorphone
- Tapentadol
- Tramadol

**Mechanism of Action: Opioids block the release of neurotransmitters that are involved in the processing of pain**

**ELNEC**

For Veterans Curriculum

- Opioids are used widely for nociceptive and neuropathic pain. Because there are many opioids available, it permits rotation from one opioid to another, when ineffective or side effects are uncontrollable (Paice, 2016).
- Fentanyl can be administered in a variety of ways – parenteral, spinal, transdermal, transmucosal (buccal, sublingual and nasal) and by nebulizer.
- Use an opioid without active metabolites (i.e. fentanyl or hydromorphone), if renal function is declining or fluctuating.
- Tramadol is a weak opioid and blocks reuptake of serotonin and norepinephrine. It may have benefit with relieving neuropathic pain; however, unlike other opioids, it has a ceiling dose. Additionally, it can lower seizure threshold and can cause hypoglycemia. Although a small risk, use with other serotonergic agents (e.g., ondansetron, SNRI inhibitors) may lead to serotonin syndrome.



- Tapentadol is an opioid (approximately equal to oxycodone potency) and a norepinephrine reuptake inhibitor and may be useful in healing neuropathic pain.
- Buprenorphine and methadone have complex pharmacokinetics; they are discussed in greater detail in the next two slides.
- Review Hospice and Palliative Nurses Association (HPNA) position statement: *The ethics of use of opioids in palliative nursing* (HPNA, 2017).

## Buprenorphine

- **Partial agonist**
- **Used for pain control and medication assisted therapy (MAT)**
- **Tablets, strips, injection, transdermal patch**
- **Less risk for respiratory depression**
- **Safer for those with renal impairment**

**ELNEC** For Veterans Curriculum

Buprenorphine (Paice, 2019) is a partial agonist that is used for pain control and medication assisted therapy (MAT) for opioid use disorder.

- It is available in sublingual tablets and strips (alone or with naloxone to deter abuse\*), buccal strips (long acting), injection, transdermal patch
- The use of buprenorphine in the treatment of opioid use disorder requires a special waiver (<https://www.samhsa.gov/medication-assisted-treatment/become-buprenorphine-waivered-practitioner>); however no waiver is needed to prescribe for pain control
- There is debate regarding whether buprenorphine has a ceiling or maximum dose
- The major benefit appears to be reduced risk for respiratory depression, although in sufficiently high doses, in persons at risk for respiratory depression or with concomitant sedating drugs, respiratory depression is possible.
- Because buprenorphine is excreted through biliary system, it may be safer for those with renal impairment, including the elderly

# Methadone

- **Positives**
  - **Oral tablets, liquid, parenteral formulations**
  - **Inexpensive**
  - **Useful for neuropathic**
- **Challenges**
  - **Long, unpredictable half-life**
  - **Prolonged QTc**
  - **Drug-drug interactions CYP 3A4**
  - **Conversion ratios?**

**E L N E C** For Veterans Curriculum

Methadone -- Methadone is available in oral tablets and liquids, as well as parenteral formulations. It has unique properties that may promote its use in pain management. It has a long half-life (8-59 hours). It can be crushed and placed in enteral tube and will provide long-term relief. Methadone offers several advantages, but it also carries many risks. This medication should not be utilized by clinicians without experience and knowledge due to increased potential risks (McPherson et al., 2019; Paice, 2019). Refer to NCI Pain PDQ for further information on methadone: [https://www.cancer.gov/about-cancer/treatment/side-effects/pain/pain-hp-pdq#section/\\_58](https://www.cancer.gov/about-cancer/treatment/side-effects/pain/pain-hp-pdq#section/_58) [Last accessed July 31, 2022].


Mechanism of action - Methadone appears to act as an antagonist in the N-methyl-D-aspartate (NMDA) receptor, in addition to opioid receptor binding. This may make methadone particularly useful in neuropathic pain syndromes. Methadone is very inexpensive, making it a good medication when pain medication dosing has been consistent enough to add a long-acting medication. ( Paice, 2019). Methadone can usually be given every eight hours, providing long-lasting relief and allowing most patients the ability to sleep through the night.

Conversion rate -An important controversy regarding methadone is the conversion ratio used when switching from another opioid. Previously, the ratio was believed to be 1:1 with morphine. This is probably true in the face of acute pain. However, when patients are already on higher doses of morphine, caution needs to be taken to decrease potential risks of methadone use and cardiac arrhythmias (McPherson et al., 2019).

Considerations for use:

- Long half-life can make titration difficult. Too quick an increase or too high a start dose can cause confusion or sedation/respiratory depression. Increasing dosage should be done gradually, never more often than every five days. Never used as a prn drug.
- QTc effects - Methadone is known to increase the corrected QT (QTc) interval and is associated with the development of Torsade de Pointes, particularly at doses greater than 100 mg/d, although in certain individuals, lower doses may cause prolongation. So considerations are needed if QTc is over 450 ms, depending on the patient's prognosis (McPherson et al., 2019).

Drug interactions -There are many potential drug interactions associated with methadone use. The onset of a clinical manifestation from a drug–drug interaction may increase the methadone levels in varying degrees, via P4503A4 inhibition.



## Opioids: Adverse Effects

- **Respiratory depression**
- **Constipation**
- **Sedation**
- **Urinary retention**
- **Nausea/vomiting**
- **Pruritus**
- **Myoclonus**

**E L N E C** For Veterans Curriculum

- Anticipate, prevent, and treat predictable adverse effects.
- Respiratory depression is greatly feared, yet rare in palliative care. Respiratory depression is almost always preceded by sedation, thus, in most cases, the healthcare professional has a warning. The time of greatest prevalence is after the first dose of the opioid in a naive patient. Respiratory depression can also occur after a change in dose of the opioid, or when benzodiazepines or other sedating drugs are administered with opioids. Opioid reversal may be considered if the patient is unarousable, has a low respiratory rate, and has poor oxygenation (one can use pulse oximeters or evaluate perfusion in the fingernails).
  - If the patient has true opioid-induced respiratory depression, the opioid can be reversed using an antagonist (naloxone). This can precipitate the abstinence syndrome and reverse all the analgesic effect of the drug, so in the inpatient setting intravenous administration should include the lowest amount to reverse respiratory depression without causing adverse effects. One ampule of naloxone (0.4 mg) can be mixed in 10 ml of sterile water or saline and administered in one ml increments to reverse the sedative/respiratory depressant effect without reversing the analgesic effect. Remember that the duration of action of naloxone is approximately 30–60 minutes, while the duration of effect of most

opioids is much longer. Thus, careful monitoring of the patient's sedation, respiratory status, and analgesic state is indicated.

- For outpatients at significant risk of respiratory depression, nasal naloxone can be obtained. Many states have widened availability so that applicators are available for free (or for a minimal fee) without a prescription (NIH, 2018). Although all patients would benefit from concomitant nasal naloxone prescribing, those with an oral morphine equivalent dose > 50 mg/day should be given nasal naloxone. Those with children in the home or frequently visiting, should be given nasal naloxone regardless of opioid dose. Instructions regarding appropriate use, and the need to call 911 if nasal naloxone is used, are critical to avoid adverse events.
- Constipation accounts for approximately 8 million visits to healthcare providers/year (Wald, 2016). Constipation is a significant effect of opioid therapy and can worsen other symptoms common in the seriously ill, including nausea and anorexia. Furthermore, constipation can lead to hemorrhoids or anal fissures that are painful and potential sites for infection. Opioids can produce reduction in peristalsis and an increased reabsorption of water from fecal contents back into the lining of the intestines. The result is slow moving, dry fecal material. A laxative/stool softener combination must be initiated once the opioid is begun and continued until the opioid is discontinued. Much like opioid dosing, the dose of laxative/softener is titrated based upon the frequency and consistency of bowel movements. This therapy should be administered regularly in order to prevent constipation. When constipation develops, various medications can be used to treat this effect, including stimulants, laxatives, enemas and other therapies. Tolerance does not develop due to the constipating effect of opioids. Be aware that constipation could be from an ileus, GI obstruction, or spinal cord compression. [Refer to NCI PDQ on *Gastrointestinal complications* for additional discussion of constipation: <https://www.cancer.gov/about-cancer/treatment/side-effects/constipation/GI-complications-hp-pdq> ; Accessed July 31, 2022]. Peripherally acting mu opioid receptor antagonists (PAMORAs) such as methylnaltrexone, naldemedine or naloxegol can be given orally or subcutaneously to patients who have advanced illness and who have constipation related to opioids . PAMORAs bind to peripheral opioid receptors in the gut, therefore decreasing the opioid's constipating effects.
- Sedation can occur, yet tolerance generally develops to this effect. Keep in mind that patients may be exhausted from unrelieved pain. Should sedation persist, rotating to a different opioid can assist in treating this adverse effect. Methylphenidate can be given at doses of 5-10 mg po in the morning and at lunch. Modafinil 100–200 mg q am has been reported to alleviate opioid induced sedation although research is needed.
- Urinary retention is more common in opioid naive patients and is most common with spinal delivery of medications (e.g., epidural or intrathecal) yet overall, it is uncommon. Tolerance occurs to this effect, usually within a few days.
- Nausea and vomiting can occur directly by decreasing gastrointestinal motility and indirectly by constipation. It can also occur through activation of the vestibular system (e.g., motion induced nausea/vomiting). Treatment includes antiemetic's or changing to a different opioid.

Tolerance occurs to this effect. See Module 3: Symptom Management for more information regarding the management of nausea and vomiting.

- Pruritus (itching) can occur, more commonly with spinal delivery of opioids. Tolerance occurs within a few days. Antihistamines can be helpful; however, sedation may result from the use of these drugs.
- Myoclonus can be managed by checking electrolytes (if appropriate), decreasing the dosage of the opioid, rotating opioids, and/or adding benzodiazepines.

## Opioids Definitions

- **Substance use disorder**
- **Tolerance**
- **Physiologic dependence**

**E L N E C** For Veterans Curriculum

- Substance-use disorder (SUD) is identified in the 5<sup>th</sup> edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) and refers to recurrent use of alcohol and other substances that cause health problems, disability, and failure to meet responsibilities (at home, work, school, etc.) (Volkow et al., 2016).
  - Substance use disorder is a primary, chronic, neurobiological disease, with genetic, psychosocial, and environmental factors influencing its development and manifestations.
  - It is characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving.

**NOTE:** Those with dual diagnosis [substance use disorder and a coexisting psychotic, affective, behavioral, or severe personality disorder] or comorbid psychiatric disorders in the setting of palliative care may present challenges of compliance and increased use or more frequent doses of opioids. The nurse needs to evaluate for substance abuse and to educate the patient/family regarding that opioids are to be used for pain only and not for other issues (i.e., anxiety, depression, sleep disorders, etc.). The nurse must be aware of all medications that the patient has been prescribed to assess/evaluate for any interactions between opioids and medications to treat the psychiatric disorders.



- Tolerance:
  - Tolerance is a state of adaptation in which exposure to a drug induces changes that result in diminution of one or more of the drug's effects over time.
  - In the clinical setting, tolerance is not a significant problem. However, misunderstandings regarding tolerance can lead to delays in treatment or withholding adequate doses of opioids.
  - Furthermore, despite commonly held beliefs, tolerance does not equal addiction.
  
- Physiological dependence (Paice, 2019):
  - A state of adaptation.
  - It is manifested by a drug class specific withdrawal syndrome that can be produced by abrupt cessation, rapid dose reduction, decreasing blood level of the drug, and/or administration of an antagonist.

## Opioid Epidemic

- **Drug overdose: Leading causes of death among those <50 years of age in US**
- **Challenge:**
  - How do we reduce pain/suffering and contain the toll of harm caused by the misuse of opioids?
  - How do we prevent unintended consequences of efforts to control misuse and protect access to opioids for those with life threatening illness?

ELNEC For Veterans Curriculum

- Substance misuse is a serious public health problem resulting in overdose deaths (opioids are often involved, primarily heroin and illicit fentanyl). According to the Centers for Disease Control and Prevention (CDC), over 100,000 deaths in the United States occurred related to drug overdose in 2021. Opioids were involved in more than 80,000 of these deaths (CDC, 2022).
- Nurses must balance these concerns through:
  - Comprehensive assessment of pain, function and risk of misuse;
  - Careful prescribing of controlled substances considering risk (if this is part of the nurse's scope of practice);
  - Non-judgmental discussion of substance use disorders with patients/families that includes motivational interviewing (also called SBIRT – screening, brief intervention, referral for treatment);
  - Advocacy to ensure access to comprehensive pain care.
- For more information, refer to a 2017 report *Pain management and the opioid epidemic* from the National Academies of Sciences, Engineering and Medicine <https://www.nap.edu/catalog/24781/pain-management-and-the-opioid-epidemic-balancing-societal-and-individual> [Accessed August 4, 2022].

## **Adjuvant Analgesics: Anticonvulsants (AKA Antiepilepsy medications)**

- **Used for neuropathic pain**
- **Gabapentin**
  - **Dose: 100-300 mg TID and titrate gradually**
- **Pregabalin**
  - **Dose 50 mg TID x1 wk then 100 mg BID or TID**

**ELNEC** For Veterans Curriculum

- Used for neuropathic pain including neuropathies, postherpetic neuralgia, trigeminal neuralgia, and phantom pain.
- Gabapentin is a frequently used anticonvulsant in treating neuropathic pain and starting adult dose is 100 - 300 mg tid (Paice, 2019). The analgesic doses of gabapentin ranges from 900-3600 mg/day.
- Pregabalin works in a similar fashion but has 90% bioavailability regardless of dose (the bioavailability of gabapentin diminishes to 35% when administering higher doses). Dosing of pregabalin is simpler than gabapentin, and its titration can occur more rapidly. Starting adult dose for pregabalin is 50 mg tid (Paice, 2019). It is now available as a generic agent, leading to reduced cost.
- Clonazepam is also in this category, with adult starting doses of 0.5-1 mg qHS, bid, or tid. Watch for sedation (Paice, 2019).

## Adjuvant Analgesics: Local Anesthetics

- **Topical: Lidocaine gel, lidocaine/prilocaine cream and lidocaine patch**
- **Intravenous**
- **Spinal**



**ELNEC** For Veterans Curriculum

- Topical anesthetics relieve superficial pain.
- Useful in relieving neuropathic pain, local anesthetics can be given intravenously (e.g., lidocaine), spinally (e.g., epidurally or intrathecally, usually bupivacaine), and topically where the skin is intact (lidocaine/prilocaine cream and lidocaine 4% [OC] or 5% patch [prescription]) (Paice, 2016).

**Other Topical Agents**

- **Menthol ± camphor**
- **Diclofenac gel/cream**
- **Capsaicin cream and patch**

ELNEC For Veterans Curriculum

Topical agents can be helpful for select pain states (Paice, 2019)

Menthol is available over the counter in creams, patches and sprays and have been described as beneficial for musculoskeletal pain and for some peripheral neuropathies. Formulations can include menthol alone or in combination with camphor and other analgesic substances.

Diclofenac gel, cream or patch is an NSAID that is now available over the counter. If applied to small areas 2-3 times daily, little drug is absorbed systemically. However, patients with risk factors for NSAID-induced adverse effects should be advised to use over the smallest area.

Capsaicin cream or patches are available over the counter and may be of benefit for musculoskeletal or nerve pain. As this agent is derived from chili peppers, patients must be advised to wash their hands carefully after application to avoid rubbing their eyes or other sensitive skin – it will cause severe burning. The high dose (8%) capsaicin patch (Qutenza) is available by prescription and generally applied in controlled conditions (often in a clinic office).

## Adjuvant Analgesics: Corticosteroids

- **Indications**
- **Activate/stimulate appetite**
- **Proximal muscle wasting**
- **Administer q am**

**ELNEC** For Veterans Curriculum

- Corticosteroids are useful when treating neuropathic pain, bone pain, and visceral pain. They can be effective in reducing inflammation associated with tumor burden, which opens airway or gastrointestinal obstructions caused by the malignancy (Paice, 2019).
- Dexamethasone produces the least amount of mineralocorticoid effect (changes in sodium and potassium excretion due to effect of the drug on the adrenal glands), and is often preferred in serious illness when prognosis is limited. Standard doses may range widely, with doses as high ranging from 4-24 mg/day or higher [contraindicated with NSAIDs concurrently].
- Corticosteroids are also helpful in improving appetite, relieving fatigue and perhaps decreasing depression (Paice, 2019).
- Side effects may include muscle wasting with long term use, GI upset, edema, impaired glucose tolerance, low immune response, or delirium.
- Due to its long half-life, dexamethasone should be ordered every am. This prevents sleeplessness, which can occur when doses are given in the evening.

# Cannabis

- **Three main categories**
- **FDA approved formulations**
- **Phytocannabinoids**
- **Endogenous cannabinoids**
- **Three routes of delivery**
  - **Inhaled**
  - **Edible**
  - **Topical**
- **Clinical considerations**
- **VA and Cannabis**
  - **Federal law**
  - **Veteran use of cannabis does not affect eligibility for care**
  - **Providers cannot recommend or complete paperwork for cannabis**
  - **VA will not pay**
  - **Cannot use on VA facility grounds**

**ELNEC** For Veterans Curriculum

- The use of cannabis to treat pain and other symptoms is becoming more popular as states across the nation permit its medical and/or recreational use.
- Considerations regarding cannabis use (Worster, Hajjar, Handley, 2022):
  - Pros: Low or no potential for overdose. May be effective for some symptoms, although high quality research is limited
  - Cons: Lung damage related to inhalation. Hyperemesis syndrome. Possible interactions with immunotherapy.
- Currently, the Food and Drug Administration (FDA) has approved three cannabis-derived medications: dronabinol (Marinol), nabilone (Cesamet), and cannabidiol (Epidiolex). It is important to note that neither the FDA nor any other federal regulatory US agency oversees or regulates the production, processing, distribution, and marketing or sales of cannabis (Savage et al., 2016).
- Clinical practice recommendations include (Savage et al., 2016):
  - Know federal and state laws governing use of medical cannabis
  - Be clear with patients about goals for therapeutic cannabis




- Counsel patients about routes of administration and potential benefits and risks, based on scientific evidence and individual symptoms, conditions and comorbidities
  - Advise patients on cannabis strains, cannabinoid medications or extracts, explaining limitations due to lack of herbal/substance uniformity and regulatory oversight
  - Monitor patients the same as for treatment with opioids or other controlled substances.
  - Patient follow up should assess progress toward achieving treatment goals, incidence of side effects, and evidence of psycho-behavioral changes.
- VA and Cannabis
  - Because federal law classifies marijuana (cannabis) as a Schedule One Controlled Substance, this makes it illegal in the eyes of the federal government and the VA is required to follow all federal laws including those regarding marijuana. As a result, VA providers may not recommend it or assist Veterans to obtain it.
  - Veterans should know that:
    - Veteran participation in state marijuana programs does not affect eligibility for VA care and services.
    - VA providers can and do discuss marijuana use with Veterans as part of comprehensive care planning and adjust treatment plans as necessary.
    - VA providers may not recommend medical marijuana, and may only prescribe medications that have been approved by the U.S. Food and Drug Administration (FDA) for medical use.
    - VA providers may not complete paperwork/forms required for Veteran patients to participate in state-approved marijuana programs.
    - VA pharmacies may not fill prescriptions for medical marijuana.
    - VA will not pay for medical marijuana prescriptions from any source.
    - The use or possession of marijuana is prohibited at all VA medical centers, locations and grounds as VA grounds comply with federal law that is in force, not the laws of the state. (VA, 2022a)

More information on the VA and Cannabis/Marijuana can be found at <https://www.publichealth.va.gov/marijuana.asp>



# Routes of Administration

- Oral
- Transmucosal
  - Buccal
  - Sublingual
  - Nasal
- Rectal
- Transdermal
- Topical



**ELNEC** For Veterans Curriculum

- In a study of cancer patients at four weeks, one week, and 24 hours before death, the oral route of opioid administration was continued in 62%, 43%, and 20% of patients, respectively. Therefore, approximately 80% of patients may need alternative routes prior to death (NCI, 2022).
- Oral: There is a misconception held by professionals/lay persons that IV, IM or subcutaneous delivery is stronger than oral. Oral delivery can provide equivalent analgesia; but due to metabolism, the dose must be increased when compared to IM, IV, or SQ routes. Thus, 10 mg of morphine given intravenously, intramuscularly or subcutaneously is approximately equal to 30 mg of oral morphine. Oral medications are available in various formulations: Immediate-release tablets/capsules (e.g., MS IR) or long acting, extended-release tablets (e.g., morphine ER)/capsules. The long-acting tablets allow longer periods of time between dosing (e.g., 8, 12, or 24 hours). This allows patients to obtain more consistent relief, which also provides uninterrupted sleep.
  - Enteral feeding tubes can be used to administer oral medications when patients can no longer swallow.
- Mucosal/buccal, sublingual, intranasal:

- Oral transmucosal fentanyl citrate (OTFC) is composed of fentanyl on an applicator that patients rub against the oral mucosa to provide rapid absorption of the drug. OTFC is lipophilic and studies show its efficacy in managing breakthrough pain in opioid-tolerant patients. This formulation is particularly useful for breakthrough pain. Therapeutic plasma levels of the drug are achieved within 5–15 minutes of application. Pain relief may be felt 5 minutes after beginning its use, though the patient should use OTFC for 15 minutes to avoid the medication being swallowed rather than absorbed transmucosal (Paice, 2019). Two examples of the appropriate use of OTFC might be for the relief of breakthrough pain that is of rapid onset (i.e., traditional breakthrough medications would lead to a delay in relief) or prior to a brief, but painful, dressing or position change. Careful titration is necessary, as the baseline opioid dose does not predict the OTFC dose.
- A buccal preparation of fentanyl is a tablet that provides rapid onset of analgesia with a peak effect less than 30 minutes. It is used for breakthrough pain in opioid-tolerant patients.
- An oral spray and an intranasal fentanyl spray are now available for breakthrough cancer pain.
- These all require enrollment in the FDA required Transmucosal Immediate Release Fentanyl (TIRF) Risk Evaluation and Mitigation Strategy (REMS) program.
  
- Rectal:
  - Thrombocytopenia, neutropenia or painful anorectal lesions preclude the use of these routes. Additionally, delivering medications via these routes can be difficult for family members, especially when the patient is obtunded or unable to assist.
  - Long acting, opioid tablets have been placed rectally when patients are no longer able to swallow. Pharmacokinetic studies suggest that the plasma concentrations of morphine after rectal placement of long acting tablets are approximately 90% of concentrations achieved when the drug is given orally. There is also a delay in peak plasma concentration when compared to oral delivery of the same drug.
  
- Transdermal:
  - Currently, the only pure agonist opioid formulation for transdermal delivery is fentanyl. The patch is placed every 72 hours over non-hairy skin, nonedematous skin with good capillary flow (often over the torso, shoulders, or upper arms). There is a delay in peak onset of approximately 17 hours after applying the first patch. As a result, this method of drug delivery is not appropriate in rapidly escalating pain. WHO (World Health Organization) just updated in July 2017 the Essential Medicines List and added fentanyl skin patches and methadone for pain relief in cancer patients with the aim of increasing access to medicines for End-of-Life care (WHO, 2017).
  - The effects of cachexia are believed to reduce serum levels of fentanyl. Although the precise mechanisms are unknown, altered fat stores (as seen in cachexia) may lead to these changes. However, cachexia does not preclude use of fentanyl patch.
  - For reasons that are not clear, some patients may obtain only 48 hours of relief, necessitating an increase in dose or, if ineffective, patch changes every two days.
  - Butrans [buprenorphine] is a partial agonist and can be administered transdermal. A new patch is placed every 7 days.

- Topical:
  - See previous slide on topical delivery
  - The use of topical opioids (not to be confused with transdermal delivery) is controversial. Most opioids (except for fentanyl and related opioids) are hydrophilic or water soluble. These prevent their absorption through fat soluble tissues, including the dermis and epidermis. Although some pharmacies are manufacturing topical morphine formulations, there is little evidence that these are effective.

## Routes of Administration (cont.)



### •Parenteral

- Intravenous
- Subcutaneous
- Intramuscular

### •Spinal

- Epidural
- Intrathecal

- Intravenous:
  - Useful when patients cannot swallow or when absorption through the gastrointestinal tract is altered.
  - This may make home care complicated.
- Subcutaneous:
  - Subcutaneous boluses have a slower onset (from 15 to 30 minutes) and lower peak effect when compared with intravenous boluses.
  - Subcutaneous infusions may be run at up to 5–10 ml/hour, although 3–5 ml is ideal.
- Intramuscular:
  - Not recommended due to wide variability in absorption, potential delays in vascular uptake of the drug, and pain.
- Epidural or intrathecal routes allow delivery of drugs in combinations, including opioids, local anesthetics, and/or alpha-adrenergic agonists. The technology is complex, requiring specialized knowledge for healthcare professionals and potentially greater caregiver burden.

Risk of infection and cost are additional concerns. There is little advantage to using intraspinal opioids alone, if the patient can tolerate these agents when given systemically. Thus, the time to select intraspinal delivery is when patients cannot tolerate adverse systemic opioid effects. Another indication is neuropathic pain in the lower extremities that might respond to epidural local anesthetic (such as bupivacaine), alone or in combination with an opioid.

## Let's Practice: A Case Study

- **Mr. Todd is an 86 year old Korea Veteran**
- **Two days ago, he fell and broke his hip and had surgery yesterday**
- **Many co-morbidities ( e.g. diabetes, renal failure), and diagnosed with stage III colon cancer 10 months ago**
- **Assessment: multiple sites of pain with pain score of “8” for incisional pain**
- **Morphine 1mg/ hr continuous rate with no breakthrough dosage**
- **Surgeon “I am afraid of overdosing him”**

➤ *Your response?*

**E L N E C** For Veterans Curriculum

Take 2–3 minutes to role play the following case study (Mr. Todd’s nurse + surgeon). You may do this with other faculty or with participants. Be encouraging, yet give specific suggestions on how to improve the conversation, if needed. Remind them that if they have not yet received the communication module, they will learn further strategies in having these conversations.

### Case Study:

Mr. Todd is an 86-year-old Korea Veteran who has a history of type II diabetes, CHF, renal failure, and was diagnosed with stage III colon cancer 10 months ago (underwent surgery and only 3 rounds of chemotherapy—he refused any further treatment for the cancer). He fell and broke his hip two days ago. Yesterday, he underwent surgery to have the hip pinned.

Mr. Todd has multiple sites of pain (e.g., incisional hip pain, arthritis, neuropathic pain from diabetes). His incisional pain is “8” and his other cited pains are self-rated as “6.” Physical therapy is in the room to begin his PT and from your assessment, you know he needs more pain medication to do the movements that will be expected.

He is currently receiving a continuous infusion of morphine, 1 mg IV per hour, with no breakthrough dosage. He has been taking two tablets of hydrocodone 5 mg/325 in the morning and at night prn since his colon surgery 10 months ago.

Role play a nurse discussing these findings with the orthopedic surgeon. The surgeon states “I’m afraid I will overdose him, due to his age.” Be sure to talk about location of the various pains, intensity, limitations, and response to the current treatment. Is he opioid naïve? If not, would that change your conversation with the surgeon in any way?

**\*This Concludes Section III**

## Section IV: Principles of Pain Management

- Opioid dose titration
- Long-acting medications
- Opioid rotation/equianalgesia
- Substance use disorder
- Cancer therapies to relieve pain
- Interventional therapies
- Nonpharmacological techniques
- Nursing role



**ELNEC** For Veterans Curriculum

- In this final section, a review of the following will be presented regarding Principles of Pain Management:
  - Opioid dose titration
  - Long-acting medications
  - Opioid rotation
  - Substance use disorder
  - Cancer therapies to relieve pain
  - Interventional therapies
  - Nonpharmacological techniques
  - Nursing role



# Principles of Opioid Dose Titration

- **Extended release/long acting release medications**
- **Immediate-release for breakthrough pain**
- **Distinguish types of breakthrough pain**

ELNEC For Veterans Curriculum

- Dose titration: Begin opioid dosing with immediate-release formulations available to the patient as needed to relieve pain. Once the patient has achieved pain relief for a period of time, calculate the 24-hour dose of opioid and convert to an extended release/long acting (ER/LA) formulation to provide background analgesia for continuous pain. [Most ER/LA opioids are safe only for opioid tolerant patients. One exception is the 5 mcg/hr buprenorphine patch.] For example, the patient who has been taking 70 mg of oral morphine equivalents (OME) in a 24-hour period may be converted to:
  - Morphine ER 30 mg po q 12 hours or
  - Fentanyl patch 25 mcg every 72 hours
- ER/LA formulations and around-the-clock dosing should be used for continuous pain syndromes. This is an important consideration, if the patient is cognitively impaired. The cognitively impaired older adult often cannot initiate a request for PRN medications, even though when directly asked, they will report pain.
- Immediate-release formulations should be made available for breakthrough pain. The dose of immediate-release medication is usually 10–20% of the total 24-hour dose of the routine opioid every 1–2 hours prn. Therefore, if the 24-hour dose of morphine ER is 200 mg, the breakthrough dose should be 20–40 mg. Start with the lower dose and titrate as needed. The

immediate-release medication can be repeated as often as every hour in severe pain events, since the peak effect of oral opioids is one hour.

- If the patient is receiving a continuous infusion of an opioid (either IV or SQ), breakthrough doses are calculated as 50–100% of the hourly rate. Therefore, if the patient has an hourly rate of 2 mg of morphine/hour, the breakthrough dose should begin at 1 mg IV bolus with appropriate titration. The peak effect of an IV bolus dose of most opioids is 15 minutes. Thus, if the patient is still in pain after that time, the bolus should be repeated.
- Breakthrough pain can be incident-related (e.g., movement-induced), idiopathic (etiology is unknown), or end of dose failure (increased pain prior to the next dose of scheduled pain medication).
- Titrate analgesics based upon patient goals, requirements for supplemental analgesics, pain intensity, severity of undesirable or adverse drug effects, measures of functionality, sleep, emotional state, and patients'/caregivers' reports of the impact of pain on quality of life.

## Principles: Use of Opioid Rotation

- **Use when one opioid is ineffective even with adequate titration**
- **Use when adverse effects are unmanageable**

**ELNEC**

For Veterans Curriculum

- When pain is not relieved by an opioid, despite precise titration of the opioid, or when the patient experiences adverse side effects, opioid rotation is warranted (Paice, 2016).
- When opioid rotation is needed to improve pain relief and/or drug tolerability, keep in mind the following (NCI, 2022):
  - If one opioid is ineffective after an adequate upward titration of the dose, or it produces adverse effects, another opioid may be used. Thus, if morphine produces little relief, switch to hydromorphone or oxycodone.
  - Studies suggest three, four, or even five opioids may be tried, until an effective agent is found.

## Principles of Equianalgesia

- **Determine equal doses when changing drugs or routes of administration**
- **Use oral morphine equivalents (OME)**
- **Reduce by 25% when changing drugs**

ELNEC For Veterans Curriculum

- When changing medication or route of administration, use conversion table to calculate doses.
- Guidelines for opioid rotation (Paice, 2016; Paice 2017):
  - Choose new drug on prior experience, availability, and cost.
  - Calculate approximate dose from conversion table.
  - These are based on oral morphine equivalents (OME) or morphine milligram equivalents (MME) or morphine equivalent doses (MED).
  - If switching to another opioid (other than methadone), identify dose reduction window of approximately 25% less than the calculated conversion dose, accounting for incomplete cross tolerance between the opioids.
  - Assess response. Increase or decrease the new opioid 15-30% prn.
  - Reassess and titrate frequently, as needed.
  - Supplemental/break through dose? 10%-20% of the 24-hour opioid dose.

- Base the administration schedule on the analgesic's duration of effect. If possible, use ER/LA opioids for scheduled dosing, and always use immediate release opioids for rescue dosing.
- For further information, see Fast Facts and Concepts#36: *Calculating opioid dose conversions* (Arnold & Weissman, 2015) at: <https://www.mypcnow.org/fast-facts/> [Accessed August 4, 2022].

**Module 2 Suggested Supplemental Teaching Materials:**

Table 1: Pain Management Guidelines & Opioid Conversion Table

Table 2: Opioid Rotation: Practice Examples

Figure 7: Infographic – Nursing Management of Pain



## Treatment of Pain in persons with Substance Use Disorder

- **Team meetings with interprofessional approach**
- **Set realistic goals**
- **Set limits**
- **Use nonopioids as able**
- **Consider tolerance**
- **Refer to specialists**

Compton et al., 2019

**ELNEC** For Veterans Curriculum

- It is vital that healthcare providers have an understanding of substance use disorder and provide compassionate care for these individuals.
- Risk factors for SUD may include (Compton et al., 2019):
  - Personal or family history of alcohol or substance abuse
  - Personal or family history of psychiatric disorder
  - History of mood disorder (e.g., depression)
  - Pain related functional limitations
  - Current cigarette smoking
  - Possible sexual abuse
  - Psychosocial stressors including past history of abuse or PTSD
- Patients with SUD are at high-risk for under-treatment of pain and misuse of opioids (Compton et al., 2019). It is important to think of the different categories that these patients may fall into:
  - Those who used drugs/alcohol in the past but are not using now.
  - Those in methadone maintenance programs or prescribed buprenorphine for medication assisted therapy who are not using drugs/alcohol now.

- Those in methadone maintenance programs or prescribed buprenorphine for medication assisted therapy who are continuing to use drugs/alcohol now.
- Those using drugs/alcohol occasionally/socially.
- Those who currently and actively misuse licit and illicit substances.
- Assessment and treatment of pain in persons with SUD can be challenging.
  - Suggestions for treatment include:
    - ◆ Use interprofessional approach
    - ◆ Hold frequent team meetings
    - ◆ Set realistic goals for pain and SUD
    - ◆ Set limits and be consistent
    - ◆ Optimize use of nonopioids, adjuvants, interventional and nonpharmacologic treatments
    - ◆ Consider tolerance (remember that patients with opioid abuse history usually require higher doses).
    - ◆ Refer to SUD specialists if available

**NOTE:** The goal of pain management in the face of substance abuse treatment harm is reduction/controlled use with the hope of minimizing interference with effective symptom management, particularly pain.

**Treatment of Pain in Persons With Substance Use Disorder (cont)**

- **Avoid parenteral injections**
- **Prevent withdrawal**
- **Treat depression and other psychiatric disorders**
- **Use alternate opioid if on methadone for maintenance**
- **Universal precautions**

**ELNEC** For Veterans Curriculum

- Further suggestions for treatment include:
  - Avoid parenteral injections if able to take medications orally (this may not be possible in patient is unable to take anything by mouth).
  - Prevent withdrawal from opioids, benzodiazepines, alcohol, and other substances.
  - Treat depression and comorbid psychiatric problems.
  - If on methadone for maintenance, add different opioid for pain.
  - Ensure consistency in implementation of pain management plan of care.
  - Incorporate non-drug interventions with pain management regimen.
- Universal precautions (Paice, 2016; Paice, 2017)
  - Assess: Pain and risk for SUD/diversion
  - Opioid management agreements/contracts: Note, that there is limited evidence of their use in palliative care, although many institutions and payors are requiring these.
  - Adherence monitoring: urine testing, pill counts, prescription monitoring programs.



## Cancer Therapies to Relieve Pain


- **Radiation**
- **Surgery**
- **Radiofrequency ablation**
- **Chemotherapy**
- **Immunotherapy**
- **Hormonal therapy**
- **Bisphosphonates**

**ELNEC** For Veterans Curriculum

- Although many hospices cannot cover the high cost of these therapies, some health plans may consider reimbursing these services, if the goal is truly palliative rather than curative.
- Radiation:
  - External beam
    - In some cases, anticancer therapies can be palliative. When used for palliation, radiotherapy is ordered to relieve pain, bleeding, and obstruction.
    - Radiation therapy is very effective in the relief of pain due to tumor mass, particularly pain due to bone metastases. In fact, more than half of palliative radiotherapy is prescribed to treat symptoms due to bone metastases.
    - Spinal cord compression due to vertebral body involvement by metastatic tumor can lead to pain, paraparesis, or paraplegia. Radiotherapy along with corticosteroids are the primary treatments. Functional outcomes depend upon early identification of spinal cord compression.
    - Radiation may also be used to treat headache, nausea and vomiting, or seizures associated with primary or metastatic lesions to the brain. In some cases, radiotherapy may be of benefit to individuals with pain, obstructive pneumonitis, or hemoptysis due to tumors within the lung. Obstruction and bleeding due to colorectal, urogenital,

- or gynecologic tumors in the pelvis can be palliated using radiotherapy. The toxicity of radiotherapy is dependent upon the organs underlying the treatment field.
- Radionuclides:
    - ◆ Radionuclides, such as Strontium-89, produce reduced pain in 80% of patients, with as many as 20% obtaining complete relief (Reisfield & Wilson, 2015). In most cases, the analgesic response was seen within 2 weeks and lasted from three to six months.
    - ◆ Others include Samarium-153, gallium nitrate, radium RA 223 dichloride and phosphorus-32. Marrow suppression is the most common toxicity.
  - Surgery:
    - Surgery may relieve pain in selected cases. One example includes pain due to complete intestinal obstruction secondary to colorectal cancer. This may be effectively relieved through formation of a colostomy or the use of stents.
    - Another example includes pain due to metastatic tumors and lumbar spinal tumors. Percutaneous transluminal angioplasty (PTA) can provide pain palliation, and improved neurological function and performance status.
    - Care must be taken to prevent complications when performing surgery within a previously irradiated area, and patient factors, such as diminished white blood cell and platelet counts, reduced plasma proteins, and generalized infection, may preclude use of this therapy.
    - Clear instructions must be provided, reinforcing the palliative goals of surgery rather than a curative intent, to avoid raising unrealistic hopes (Sun et al., 2019).
  - Radiofrequency ablation:
    - Uses a minimal invasive technique to introduce a probe into an organ or bone
    - An electrical current creates heat which destroys lesions/tumor
    - A reduction in the mass effect can lead to pain relief (Sindt & Brogan, 2016).
  - Chemotherapy:
    - Antineoplastic therapies, including chemotherapy and biological response modifiers, may provide palliation by decreasing tumor burden (Sun et al., 2019).
    - Unfortunately, little research has been directed at evaluating the analgesic effect of various chemotherapeutic regimens, focusing instead primarily on tumor regression.
  - Immunotherapy:
    - Biologic therapies that modify the immune system to stop or slow tumor growth
    - Includes monoclonal antibodies, targeted therapies, check point inhibitors, T-cell therapies and vaccines
    - Reduction in tumor burden and lead to improved pain control (NCI, 2019).
  - Hormonal therapy: Hormonal therapy has been documented to produce analgesia, specifically in the relief of pain due to bone metastases (Kamposioras & Briasoulis, 2014).
    - Other therapies: Bisphosphonates are substances traditionally used to correct hypercalcemia of malignancy. These include pamidronate and zoledronic acid. Studies suggest they may also reduce pain, particularly by reducing fractures associated with lytic lesions, including pathologic fractures.

- Zoledronic acid has been found to show significant reductions in skeletal-related events and pain in patients with bone metastases from advanced prostate cancer.



# Interventional Therapies

- Neurolytic blocks
- Neuroablative procedures
- Vertebroplasty/Kyphoplasty

ELNEC For Veterans Curriculum

- Neurolytic blocks:
  - Neurolytic blocks are useful when pain is well localized and when patients have been identified as having a limited life expectancy. The celiac plexus block for abdominal pain due to pancreatic cancer is highly effective and associated with few adverse effects (Swarm et al., 2019). Drugs commonly used for nerve blocking procedures include phenol or alcohol.
  - Often a first injection is conducted diagnostically, using a local anesthetic to determine whether blocking a particular nerve produces sufficient relief to perform the more permanent procedure. A particular concern is the gradual reduction of opioid doses to prevent the onset of withdrawal after any pain-relieving neurolytic procedure.
- Neuroablative procedures:
  - Neuroablative procedures are generally appropriate for the small number of individuals who do not obtain relief with any of the previous therapies.
  - Ablative procedures include commissural myelotomy, dorsal rhizotomy, hypophysectomy, neurectomy, and percutaneous or open anterolateral cordotomy.
- Vertebroplasty:

- Vertebroplasty is a procedure conducted percutaneously to strengthen vertebra that have been weakened by osteoporosis or cancer. A needle is injected into the vertebra and acrylic cement called polymethylmethacrylate (PMMA) is injected. The acrylic hardens, restoring strength in the vertebral body.
- Kyphoplasty is a similar procedure except that a balloon is inserted into the vertebral body and then filled with acrylic.
- Both vertebroplasty and kyphoplasty are generally done as out-patient procedures.

## Non-Pharmacologic Strategies

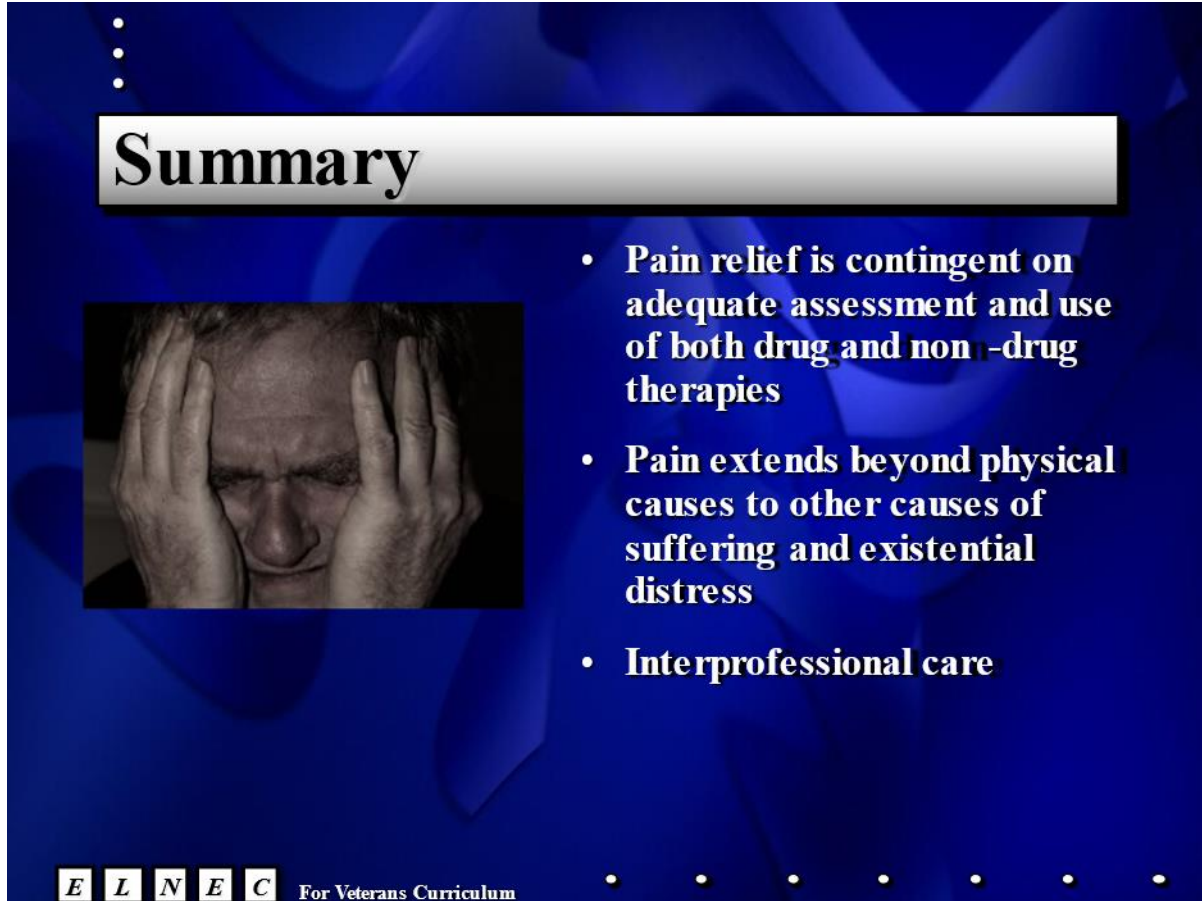
Physical	Psychological	Complementary & Integrative
Rehabilitation	Relaxation	Acupuncture
Exercise	Meditation	Qigong
Heat or cold	Hypnosis	Therapeutic massage
TENS (Transcutaneous electrical nerve stimulation)	Music	Reiki
Cognitive behavioral therapy	Biofeedback	Virtual reality
	Systematic desensitization	

**ELNEC** For Veterans Curriculum

- These therapies serve as a useful adjunct to analgesic therapies (Meyer & Ring, 2019). They can be used after administering a breakthrough dose of a short-acting opioid. There may be a delay in response to the opioid, and nonpharmacologic techniques help reduce pain during this period.
- Many relaxation and guided-imagery CDs and podcasts are available; some are focused on pain or wellness. Distraction can include watching TV or talking to friends in person or on the telephone. Expressive arts and music can include creating art or sound or, if the patient prefers, simply viewing artwork. This allows expression of pain and emotions in a way that is nonverbal. Cognitive reframing is a strategy used in psychology to think about the experience in a new way. This is particularly helpful for the individual who sees the experience as punitive—a social worker, chaplain, or psychologist can help reframe the event, so that the patient can see a different meaning in pain. Support groups assist patients in understanding the universality of their experience and learning coping strategies from others in similar situations. Pastoral counseling and prayer can address the spiritual components of pain.
- Physical measurements such as massage and reflexology produce relaxation and relieve pain. In a study of massage in hospice patients, relaxation was achieved as measured by blood pressure, heart rate, and skin temperature.

**Module 2: Suggested Supplemental Teaching Material**

Figure 8: Infographic – Nonpharmacologic Management of Stress: Meditation/Mindfulness Apps.



## Summary

- **Pain relief is contingent on adequate assessment and use of both drug and non-drug therapies**
- **Pain extends beyond physical causes to other causes of suffering and existential distress**
- **Interprofessional care**

ELNEC For Veterans Curriculum

- While the focus of this module has been on assessment and treatment of physical pain, suffering and existential distress are also common in serious illness. Pain relief is contingent upon adequate assessment and use of drug and nondrug treatments.
- Many patients search for the meaning of their illness. They had places to go and people to meet during this season of life, but the diagnosis of a life-limiting disease abruptly interrupted those plans. Illness is not a welcomed visitor. The process of finding meaning of the illness depends on the inward journey and relies on the “telling” of that journey, through observation of the eyes, hands, or the way the body is held (Borneman & Brown-Saltzman, 2019). Pain itself does not cause suffering; it is the meaning of that pain that determines the suffering.
- An interprofessional approach is essential for comprehensive pain management.

*“The most important practical lesson that can be given to nurses is to teach them what to observe...” ~Florence Nightingale, 1859*

### **Suggested Supplemental Teaching Material:**

Figure 6: Teaching Tips

**\*This Concludes Section IV**