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 (Pam Malloy, MN, RN, FPCN, FAAN, Co-Investigator). Curriculum development and 6 national ELNEC-For Veterans train-the-trainer courses were generously funded by the US Department of Veterans Affairs (2009-2012).
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

This module reviews basic principles of pain assessment and management with a focus on pain at the end of life with the following key messages:
- Comprehensive pain assessment is essential to adequate pain relief.
- There are many barriers impeding pain assessment and treatment.
- The Veterans Health Administration (VHA) is dedicated to improving pain management.
- Nurses should work collaboratively with the Veteran, their family and interdisciplinary colleagues toward optimum use of drug and non-drug interventions.
- Treatment of pain at the end of life also includes attention to suffering

Note to Faculty:
- There are 4 sections and they are divided into the following categories:
  I. Introduction to Pain
  II. Pain Assessment
  III. Pharmacological Therapies
  IV. Principles of Pain Management
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:

#1: Give a brief overview of the entire content
#2: 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 for patients receiving palliative care.
2. Describe the VHA programs that are dedicated to improving pain.
3. List the components of a thorough pain assessment.
4. Describe pharmacological and nonpharmacological therapies used to relieve pain.
5. Discuss the role of the nurse involved with pain assessment and management in palliative care and at the end of life.
Note: Pain and other symptoms at the end of life can usually be relieved if clinicians have the training and resources to focus on this goal. Well-trained clinicians can provide adequate pain relief for patients requiring palliative care and at the end of life.

Access to resources and education is available. We just need to be educated in order to provide compassionate care that includes excellent pain assessment and management, preventing Veterans from suffering.

You are beginning that step of educating yourself today. Congratulations!
"Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage..." (IASP, 2014)

"Pain is whatever the person says it is, experienced whenever they say they are experiencing it." (Pasero & McCaffery, 2011)

Veterans at-risk
Past pain experience

"Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage" (IASP, 2014). Pain is more than a change in the nervous system, but is also reflective of the patient's past pain experiences and the meaning of the pain to the patient.

"Pain is whatever the person says it is, experienced whenever they say they are experiencing it" (Pasero & McCaffery, 2011). This definition describes the subjectivity of pain. We cannot know when another is experiencing pain, unless they tell us. Self-report is the only valid measure of pain. At times, Veterans may be unable to report their pain. In those circumstances it is acceptable to ask family members, friends, or caregivers if they believe the individual to be in pain.

At the end of life, many Veterans are at-risk largely if they cannot communicate their pain due to delirium, dementia, aphasia, motor weakness, language barriers, cultural aspects, and other factors. If the Veteran has any potential physical reason for discomfort, they are considered to have pain until proven otherwise. Thus, assume pain is present (Herr et al., 2011).

For some Veterans, past pain experience can be related to trauma or violence witnessed on the battlefield.
**Exercise – Stop and Consider:** Ask participants to identify who in the room has pain/who does not. Discuss the difficulty of identifying pain through behavior and the importance of verbal report in assessment. Combining both behavior and verbal report are the most meaningful way to assess pain, since some people under-report and others over-report pain. Discuss the subjectivity of pain.
Studies regarding pain management in various diseases show poor pain control and the contribution to suffering at the end of life (Paice, 2015).

- Pain was reported in 25% of newly diagnosed cancer patients; 60% of those undergoing treatment for cancer; 75% of those experiencing life-threatening illness and terminally ill; and 33% of patients reporting inadequate analgesia (Paice, 2015).
- Individuals with AIDS and the management of chronic pain syndromes (e.g., GI, chest pain, neurological and rheumatological (Kirton & Sherman, 2015) with reports of pain in 88% of patients with AIDS and 69% suffering with moderate to severe pain affecting their activities of daily living.
- Not only does untreated pain cause needless suffering for individuals and unfortunately, there has been less research of pain prevalence and experience of patients with other life-threatening disorders (i.e., ALS, etc). According to the IOM 2011 report, chronic pain affects about 100 million American adults—more than the total affected by heart disease, cancer, and diabetes combined. Pain also costs the nation up to $635 billion each year in medical treatment and lost productivity. Pain is a silent epidemic in older adults who do not self-report; believing that pain is a normal consequence of aging and it is often under recognized and undertreated in patients who cannot self-report, such as patients who are cognitively impaired. Pain is a primary reason for visits to the physician, a major cause of disability, a primary reason for taking medications and plays a major role in the diminished quality of life for people suffering from chronic persistent pain. Thus pain is a significant burden causing both discomfort and distress for many.
- The National Consensus Project Guidelines (2013) provide guidance to assure the appropriate assessment and management of pain in palliative care.
In order to address pain needs, it is important to understand the barriers that prevent excellent assessment and management.

Healthcare professionals: A primary barrier to pain assessment and management is lack of healthcare provider education.

These barriers are prevalent with Veterans, families, healthcare providers, and the healthcare systems:

- Inadequate assessment
- Fear of side effects including respiratory depression
- Indoctrination to endure pain as a soldier
- Fear of addiction/tolerance
- Fear of hastening death
- Healthcare systems are concerned about reimbursement issues as cost is a major barrier to providing effective analgesia in palliative care. Many analgesics and adjuvants (particularly the more sophisticated formulations) can be extremely expensive. Patient assistance programs may be necessary

Other behaviors to consider
- Desire to be a “good” patient
- Reluctance to acknowledge pain as this may mean disease progression
- Fear of injection
- Poor communication between patient and healthcare team
- Limited capacity to report pain
- Personal/family cultural influences (see Culture Module for further information)
• The role of the nurse: Nurses can work to overcome the barriers through education, quality improvement efforts, and involvement in professional groups that advocate for those in pain. Veterans suffer from many of the same myths and attitudes that plague healthcare professionals. Nurses can reassure Veterans that pain control is everyone's right, that they rely on Veterans to report their pain, and that good pain management will improve their quality of life. Proactive education of Veterans and their family/support persons is necessary, including tolerance, physiological dependence, and addiction. In addition, cultural, religious, spiritual beliefs and practices can impact pain reporting and management for patients and staff, respectively (Narayan, 2010; NCP, 2013).

Exercise – Stop and Consider:
What medication may be missing from your formulary that could be a barrier and prevent good pain management? What members of the healthcare team are actively involved in pain care plans?
Several military registries have found that pain symptoms and diagnoses are the most prevalent medical conditions reported by Veterans.

- **Persian Gulf War**
  - At the James A. Haley Veterans’ Hospital in Tampa, FL, a survey was conducted of 15,000 Persian Gulf War (PGW) Veterans, from all military branches (Gironda et al., 2006). The study showed a high prevalence of headaches (54%), joint pain (45%), back pain (44%), muscle pain (33%), and abdominal pain (23%).
  - Of the Veterans who had a pain score recorded during their first visit at the VA Healthcare System, 46.5% (N=369) reported that they had at least some level of current pain (≥1 on the 0-10 pain intensity scale).
  - 59.3% (N=219) of that subset reported pain intensity at a level of ≥4 on the 0-10 pain intensity scale.

- **Afghanistan and Iraq**
  - Due to explosive blast injuries, gunshot wounds, and motor vehicle accidents, they, too, will be presented with various pain-related issues for years to come. Longer and repeated deployments increase the exposure to these risks (Holbrook et al., 2010).

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.
Implementation of the Stepped Up Care Model (Dowell et al., 2016; IPRCC, 2016; Kerns, 2012)
- Single standard of pain care for VA
- Empirically supported model
- Patient-centered management
- Patient education initiatives
- 4 steps in the model

Opioid Safety Initiative

The Opioid Safety Initiative and corresponding Toolkit was launched October 1, 2014. The Directive, Toolkit and Informed Consent Directive and additional materials were created to guide providers in the management of chronic pain. This and other materials can be viewed at http://www.va.gov/PAINMANAGEMENT/Opioid_Safety_Initiative_OSI.asp and http://www.va.gov/PAINMANAGEMENT/Opioid_Safety_Initiative_Toolkit.asp both retrieved April 26, 2016. For more extensive information on the VA approach to safety and opioids see the Pain Management Opioid Safety VA Educational Guide (2014) noted in the references for this module.
Note:

- “The VHA, within the Department of Veterans Affairs, is appropriated a fixed amount of funds by Congress. Those funds are distributed to 23 regional service networks. The amount distributed to each region is determined by the Veterans Equitable Resource Allocation (VERA) system, an allocation method based on the number of patients served in the region and the severity of their conditions. VHA facilities do bill third-party payers (e.g., private insurance) for non-service-connected care. The funds generated from third-party payers go to the billing VHA facility. The VHA does reimburse for care provided at non-VHA facilities, using fee-for-service, when a veteran is unable to access care at a VHA facility in emergencies, if a covered service cannot be provided at a VHA facility, or due to geographic inaccessibility” Retrieved March 26, 2016 from page 73 http://iprcc.nih.gov/docs/HHSNational_Pain_Strategy.pdf

- The VA has endorsed Six Essentials of Good Pain Care:
  1. Educate Veterans/families to promote self-efficacy and shared decision making; provide access to all relevant resources
  2. Educate/train all team members to their discipline specific competencies, including team based care
  3. Develop and integrate non-pharmacological modalities into care plans
  4. Institute evidence based medication prescribing, use of pain procedures and safe opioid

use (universal precautions)
5. Implement approaches for bringing the Veteran’s whole team together such as virtual pain consulting (SCAN-ECHO, e-consults, tele-health, clinical video tele-consultation and education) and for maintaining ongoing communication between team members
6. Establish metrics to monitor pain care and outcomes at both the individual level and the population level”

Slide 9

VHA Pain Management Online Resources

- Transforming VA Pain Care
  - Six Essential Elements of Good Pain Care: www.va.gov/painmanagement

- VA Pain Resources

Transforming VA Pain Care: Six Essential Elements
1. “Educate Veterans/families to promote self-efficacy and shared decision making; provide access to all relevant resources.
2. Educate/train all team members to their discipline specific competencies, including team based care.
3. Develop and integrate non-pharmacological modalities into care plans
4. Institute evidence based medication prescribing, use of pain procedures and safe opioid use (universal precautions).
5. Implement approaches for bringing the Veteran’s whole team together such as virtual pain consulting (SCAN-ECHO, e-consults, tele-health, clinical video tele-consultation and education) and for maintaining ongoing communication between team members.
6. Establish metrics to monitor pain care and outcomes at both the individual level and the population level.”

On this site you will find numerous resources including, but not limited to:
- Educational resources for providers
- Clinical tools
- Pain measures
- Websites
- Clinical Practice Guidelines
- AHRQ and NCCN Guidelines (NCCN, 2015)
- VHA National Pain Management Strategy: Stepped Care Model
Slide 10

Discussion and Summary

- Which barriers are problematic at your facility?
- What can be done to break down these barriers?
- What can you do to promote improved pain management?
- How do you think the Stepped Up Plan could benefit Veterans in your facility?

- Barriers to pain relief (listed on slide 6):
  - Inadequate assessment
  - Fear of side effects
  - Fear of addiction/tolerance
  - Fear of respiratory depression
  - Fear of hastening death
  - Healthcare systems
  - Cost and reimbursement
  - Attitude, beliefs, spiritual/religious, or cultural practices
  - Lack of education

- Objectives (by VHA) to provide effective pain management:
  - Build on existing infrastructure
  - Develop partnerships with VHA and non-VHA organizations
  - Focus on pain across all clinical settings and pain conditions
  - Improve pain assessment and documentation
  - Promote cost-effective pain care
  - Promote staff education
  - Develop Veteran/family educational programs
  - Use performance improvement methods much more effectively

In Section I we reviewed the definition of pain, barriers and implications within the VHA system. In Section II, we will discuss the components of a comprehensive pain assessment.
• There are numerous components to a pain assessment. This slide enumerates the initial 3 assessment considerations.

• Pain assessment includes:
  ➢ Take a comprehensive pain history. Determine military beliefs about pain that might interfere with reporting pain or fear. Be aware that ingrained stoicism and shared moral values of courage and valor may be contributing military factors that may promote under-reporting of pain.
  ➢ Conduct a thorough physical examination.
  ➢ Evaluate laboratory and diagnostic testing.
  ➢ A comprehensive approach is necessary and other aspects of pain assessment should be considered:
    - Importance of assessment and reassessment
    - Common pain syndromes
    - Pain versus suffering
    - Under-treatment of pain and those at risk
    - Importance of excellent communication
    - Addiction assessment, tolerance and dependence for those patients receiving opioids
The etiology of pain can vary from acute pain that lasts less than 90 days and is related to an injury or surgery to chronic pain that lasts 90 days or greater and can have complex multifactoral contributors.

Pain can be nociceptive in its origin meaning it is caused by soft tissue or organ damage and results in agitated nerves transmitting pain signals from the injured skin, muscles and/or organs. Somatic pain comes from the joints, bones, muscles and other soft tissues, while visceral pain comes from the internal organs.

Pain may also be neuropathic in origin, resulting from direct stimulation of the myelin or nervous tissue of the peripheral or central nervous system. Neuropathic pain syndromes are chronic pain disorders caused as a consequence of a lesion or disease of the parts of the nervous system that normally signal pain. Neuropathic pain is often persistent and the quality of the pain sensation can differ from that of nociceptive pain. Neuropathic pain is a multidimensional phenomenon that can vary in intensity, location, time pattern, and quality.

Veterans often present with chronic pain which can be from military injuries or structural skeletal and muscle compromises that occurred as a result of military assignments. Chronic pain is a multifaceted disease often requiring multimodal treatment. Both peripheral and central nervous system pain mechanisms signal and modulate a number of potential end points that can make pain assessment challenging.
• Complex regional pain syndrome (CRPS) is a chronic (lasting greater than six months) pain condition that most often affects one limb (arm, leg, hand, or foot) usually after an injury. CRPS is believed to be caused by damage to, or malfunction of, the peripheral and central nervous systems. The central nervous system is composed of the brain and spinal cord; the peripheral nervous system involves nerve signaling from the brain and spinal cord to the rest of the body. CRPS is characterized by prolonged or excessive pain and changes in skin color, temperature, and/or swelling in the affected area.

• The key symptom of Complex regional pain syndrome is prolonged severe pain that may be constant. It has been described as a “burning,” “pins and needles” sensation, or as if someone were squeezing the affected limb. The pain may spread to the entire arm or leg, even though the injury might have only involved a finger or toe. In rare cases, pain can sometimes even travel to the opposite extremity. There is often increased sensitivity in the affected area, known as allodynia, in which normal contact with the skin is experienced as very painful.

• People with CRPS also experience changes in skin temperature, skin color, or swelling of the affected limb. This is due to abnormal microcirculation caused by damage to the nerves controlling blood flow and temperature. As a result, an affected arm or leg may feel warmer or cooler compared to the opposite limb. The skin on the affected limb may change color, becoming blotchy, blue, purple, pale, or red.

• Treatment of pain should be guided by a comprehensive assessment.
The initial pain assessment is vital, as it will assist the nurse and other members of the interdisciplinary team in management. Pain must be made “visible” in the organization—routinely charted as a “fifth vital sign” so that unrelieved pain triggers a prompt response (ACPA, 2016). Thus, eliciting a self-report of pain is important (Pasero & McCaffery, 2011). Involve the family/caregivers when obtaining a pain history. However, keep in mind that the Veteran’s self-report is the most valid measure of pain (discussion of those unable to self-report pain will be found later in this module). Note that at times you may hear discrepancies between the Veteran’s report of pain and those of the other family members. Explore these differences. Perhaps the Veteran wants to be “stoic” for his/her family and/or healthcare providers, and will underreport the pain. Family members may be distraught over their family member’s illness that they may be overestimating the pain.

Note: Some Veterans may not use the word “pain.” They may use such words as “discomfort,” “ache,” “hurt.” Culture and the role of stoicism may have a role here. Many may assume that if they use the word “pain,” they will be seen as complaining, being difficult to care for and/or a “weak” soldier (Grassman, 2009).

- Assess any pathological condition(s) that could cause pain (i.e. bone metastasis, burns, phantom pain from amputation, etc.). What procedure(s) is the Veteran undergoing that could cause pain (i.e. bone marrow biopsy, surgery, debridement, etc.)?

- Note any patient behaviors that could indicate pain (i.e. furrowed brow, crying, inability to sleep, etc.).
A stoic culture encourages people to bear their pain without reporting it. The military has a slogan, “Pain is weakness that is leaving the body.” These types of stoic beliefs can cause Veterans to under report their pain and suffering because they are ashamed of being perceived as “weak.” It can also cause them to under report their fears. Fear can intensify the experience of pain. Stoicism is made up of three components: pride, control, and independence. Anything threatening these three can incite anger and defensive fight/flight responses (Grassman, 2009).

**Note:** To obtain a complete list of reliable and valid pain assessment tools, go to the City of Hope Pain/Palliative Care Resource Center [http://prc.coh.org/pain_assessment.asp](http://prc.coh.org/pain_assessment.asp) (last retrieved February 26, 2016).
Caring for Veterans with advanced dementia can be challenging for nurses and other members of the interdisciplinary team. Combat Veterans who have dementia might have memories surface that causes agitation because their cognitive decline can no longer keep them suppressed (Grassman, 2009).

Studies have shown that those in various stages of dementia may have difficulty in interpreting the pain stimulus and the affective response to the sensation and therefore may have difficulty in self-reporting pain (Buffum et al., 2007). Those with mild to moderate cognitive impairment may be able to self-report pain, but as dementia progresses, the ability to self-report decreases (Herr et al., 2011).

With older Veterans, there could be numerous causes of pain. Remember that they may have chronic pain (e.g. arthritis, low back pain, neuropathies, etc). Note that the most common disorders related to pain in elders are musculoskeletal and neurologic disorders. Be aware of a recent fall or other painful problems (e.g. urinary tract infection, decubitis ulcer(s), etc.) (Herr et al., 2006). Document effects of pharmacologic and nonpharmacological interventions. Behaviors may not be specific to pain and management be caused by other unmet needs.

Note such behaviors as facial expressions, body movements, verbalization of pain (moaning, groaning), changes in activity/routines, changes in interpersonal interactions, rubbing an affected body part, mental status changes, appetite changes (AGS, 2009, Geriatricpain.org).
Proxy or surrogate reporting may be necessary in this population. In the nursing home, the certified nursing assistant may be considered the surrogate, since he/she spends more time at the bedside with these Veterans than any other person. In the home setting, family members may serve as the proxy and in acute care settings, it may be the nurse. However, many times, the nurse may not know the Veteran well, especially if this is their first encounter. In acute care, the Veteran may have many different nurses over the course of their hospitalization, so surrogate reporting may not always be consistent. Proxy reporting of Veteran’s past responses to painful stimuli could inform staff about characteristic behavioral indications (Buffum, 2009). When Veterans transfer between care settings (i.e. acute care to long term care), pain responses and management are often overlooked. Communication is essential between formal and informal caregivers and between transferring settings (Buffum & Haberfelde, 2007). Documentation and communication are key!

Use a behavioral observation assessment tool when self-report is not possible or reliable. Tools such as:

-- Pain Assessment in Advanced Dementia (PAINAD) (Warden et al., 2003)
-- Noncommunicative Patients Pain Assessment (NOPPAIN) (Horgas & Miller, 2008)
-- Pain Assessment Checklist for Seniors with Limited Capacity to Communicate (PACSLAC) (Fuchs-Lazelle & Hadjistavropolous, 2004)

Note: To obtain a list of reliable and valid assessment tools for this population, go to: http://prc.coh.org/pain_assessment.asp.
- Assessing pain in Veterans who are intubated in critical care settings and/or who are unconscious in acute care settings, home settings, or nursing homes can be challenging.
  - Verbal self-report may be hampered in those who are intubated and/or unconscious.
  - Know patient’s past history of acute and/or chronic pain. Pay attention to procedures/tests the patient may be having that could cause pain (i.e. surgery, traumatic injuries, suctioning, turning/repositioning, wound care, etc.). Treat pain accordingly, even though the patient is not able to report pain.
  - Note such behaviors as grimacing and wincing. Behavior pain scales are not appropriate for those who are pharmacologically paralyzed such as those patients on ventilators. There is limited evidence that using vital signs as the only indicator of pain is useful. Watch for physiologic and behavioral responses, as this may indicate a sudden onset of pain.
  - Proxies play a major role in reporting pain in this population.

- Pain screening tools used for adults who are critically ill or unconscious are available and reviewed (Herr et al., 2011).
  - Behavioral Pain Scale (BPS) for nonverbal and verbal adults in intensive care and procedural pain
  - Critical-Care Pain Observation Tool (CPOT) for nonverbal and verbal adults in intensive care and procedural pain
  - Face, Legs, Activity, Cry, Consolability Behavioral Scale (FLACC) for nonverbal adults and procedural pain in intensive care
  - Nonverbal Pain Assessment Tool (NPAT) for nonverbal and verbal adults in intensive care
**Note:** “Safe and effective chronic opioid therapy for chronic noncancer pain requires clinical skills and knowledge in both the principles of opioid prescribing and on the assessment and management of risks associated with opioid abuse, addiction, and diversion. Although evidence is limited in many areas related to use of opioids for chronic noncancer pain, this guideline provides recommendations developed by a multidisciplinary expert panel after a systematic review of the evidence” (Chou et al., 2009, p. 114). Additional information is available with new Centers for Disease Control guidelines (Dowell et al., 2016) that illuminate the Stepped Up Model of pain management from the VA.
• Taking a pain history is vital in assessing and managing pain.
  
  ➢ **Location:** Many patients have multiple pain sites. The site of pain can be referred. For example, after laparoscopic surgery, patients describe pain in their shoulder. When patients report "pain all over", this generally refers to total body pain or existential distress (unless there is an underlying physiologic reason for pain all over the body, such as fibromyalgia syndrome). Assess the patient's emotional state for depression, fear, anxiety, or hopelessness.

  ➢ **Intensity:** 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 Veterans cannot conceptualize pain using a number, simple categories can be useful (e.g., no pain, mild, moderate, severe). Verbal description scales are the preferred scale for assessing pain in cognitively intact adults. Scales for those who are cognitively impaired and unable to self-report are behavioral observation assessment scales.

  ➢ **Quality:** Pain can be grossly divided into two main types: nociceptive and neuropathic.
    – Nociceptive pains are usually related to damage to bones, soft tissues, or internal organs. Nociceptive pains include somatic and visceral pains. Somatic pain is aching, throbbing pain. Arthritis is an example of somatic pain. Visceral pain is squeezing, cramping pain. Examples include liver metastases or pancreatitis pain.
    – Neuropathic pain is generally due to damage to the nervous system. Patients describe the pain as burning, tingling, electrical, or shooting. Examples include diabetic neuropathy or postherpetic neuropathy (shingles).
- **Pattern and duration:** Pain may be always present. This is often termed baseline pain. Additional pain may occur intermittently that is of rapid onset and greater intensity than the baseline pain. This is called breakthrough pain. It is also important to ask about the duration of all sources of pain over the course of 24 hours. People at the end of life often have both types of pain.

- **Aggravating/alleviating factors:** What makes the pain better? What makes the pain worse? These facts can provide information regarding the etiology of the pain, as well as potential treatments.

- **Medication history:** It is imperative to understand which drugs the patient has already tried, whether these were effective, and what adverse effects resulted. Question patients regarding what has been prescribed and what they are actually taking (and the reasons for any disparity). Also ask patients about use of over the counter drugs, recreational drugs, and herbal products. What about non-medication strategies?

- **Meaning and beliefs about the pain:** The meaning of the patient's pain can profoundly affect pain perception at the end of life. 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. Survival guilt and/or spiritual distress can impede a Veteran's willingness to accept pain management. Cultural beliefs regarding the meaning of pain should be examined (Narayan, 2010). (Refer to Module 5 - Culture).

- **Addiction history:** (see next slide)
It is important to assess the possibility of pre-existing addiction. Addiction is a psychological and behavioral syndrome; the compulsive use of a substance resulting in physical, psychological, or social harm to the user and continued use despite the harm.

“Misunderstanding of addiction and mislabeling of patients as addicts result in unnecessary withholding of opioid medications. Addiction is a compulsive disorder in which an individual becomes preoccupied with obtaining and using a substance, the continued use of which results in a decreased quality of life. Studies indicate that the de novo development of addiction when opioids are used for the relief of pain is low. Furthermore, experience has shown that known addicts can benefit from the carefully supervised, judicious use of opioids for the treatment of pain due to cancer, surgery, or recurrent painful illnesses such as sickle cell disease” (APS, 2008). Untreated substance abuse compromises palliative care interventions (Oliver et al., 2012).

One report showed 43% of active-duty military personnel in the previous month had participated in binge drinking. Serving multiple tours and not having a chance to be with family/friends and get help has taken its toll. These soldiers return to war, without facing their addiction and mental health problems (Trans World News, 2009). When assessing addiction:

- Explain why it is important to assess.
- Assume use: “How often do you use…?”
- Estimate high quantity: “Do you drink a case a day?”
- Know the family history of addictive disease.
- Be nonjudgmental.

- Provide a structured and safe environment for Veterans and their support persons. Co-morbid psychiatric disorders may play a role, 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 than patients without a history of substance abuse using opioids. Use nonopioids, such as NSAIDs and adjuvant analgesics, along with opioids. Prevent withdrawal from opioids, benzodiazepines, and alcohol. Concurrent abuse of several substances is not uncommon.
In 2004, the American Pain Society (APS), the American Academy of Pain Medicine (AAPM) and the American Society of Additive Medicine (ASAM) issued a joint consensus statement that requires healthcare providers to examine, discuss risks/benefits with patients, document/follow-up to determine if prescribed drugs are improving the patient’s status (2004).

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, which promotes undue suffering. Furthermore, despite commonly held beliefs, tolerance does not equal addiction (Pasero & McCaffery, 2011).

Thus, nurses must be aware of the definitions of tolerance, physiologic and psychological dependence so they can reasonably discuss risks and benefits with Veterans and be prepared to answer questions they may have regarding fear of addiction.

**Exercise - Stop and Consider:**
Think of a Veteran you have cared for who was on an opioid for a period of time and the same amount that was given to him earlier is no longer providing the pain relief it once did. An increase in dosage would provide pain relief, but the Veteran is certain that he is now addicted. How would you respond?
Physical dependence is a state of adaptation that 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 (APS, ASPM & ASAM, 2004).

- Physical dependence may be a potential side effect of the long-term use of opioids that are prescribed for pain.
- When an antagonist, such as naloxone is given, it can quickly block the opioid receptors and produce a rapid onset of withdrawal symptoms.
- Note that physical dependence is NOT addiction.

**Exercise - Stop and Consider:**
If an opioid is stopped or reduced, the Veteran can experience some signs/symptoms of withdrawal. How would you describe this to your Veteran patient who said, “I told you this would happen if I took that pain medication”? 
Psychological dependence (addiction) is a primary, chronic, neurobiological disease, with genetic, psychosocial, and environmental factors influencing its development and manifestations (APS, AAPM & ASAM, 2004).

It is characterized by behaviors that include one or more of the following:
- Impaired control over drug use
- Compulsive use
- Continued use despite harm
- Craving

Psychological dependence can prevent good assessment of pain can and continue to impact pain and suffering.

To reduce the risk of opioid psychological dependence while providing effective pain management:
- Obtain relevant patient background information.
- Use screening instruments to identify patients who are at risk or may be opioid dependent.
- Document appropriately.
- Manage medications.
- Monitor patients closely for symptoms of physical and psychological dependence

On-going assessment is critical and may require mental health providers to elucidate the complex interactions among personality factors, non-addiction-related psychiatric illness, addiction, and abuse.
**Note:** Be aware of the iatrogenic syndrome, pseudo addiction, where patients “act out” when distressed. This can be confused with drug-seeking behavior. When patient has improved pain relief, the behavior resolves.
A thorough physical examination is essential to assess pain.

- **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.
- **Inspect** 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) or other syndromes.
- **Percuss** the area for fluid accumulation or gas (especially for abdominal pain to rule out obstruction, ascites, etc.).
The need for additional laboratory or radiographic evaluation is directed by the goals of care for the Veteran. One way to consider this is to consider ruling out potentially treatable causes. For example, a Veteran may complain of abdominal pain and the physical examination is inconclusive. An X-ray or CT scan may differentiate between pain due to ascites vs. pain due to obstruction, which may be treatable.

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, “Will the course of therapy change by the findings of this test?” If not, the test should not be conducted. Thus, remember the goals of care.
It is critical to reassess pain regularly, with any changes in the character, duration or intensity of pain, or with changes in the analgesic regimen.

The regularity of pain assessment is dependent upon the degree to which the Veteran's condition or pain state is changing. More rapidly progressive disease demands more frequent assessment. Veterans should be coached to report any changes in their pain.

When attempting to determine the success of a new analgesic the Veteran may be asked, "after taking that pill (or liquid, shot, etc), how much pain relief did it provide?" If the Veteran 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 (the Fifth Vital Sign) (VA, 2000). 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. Documentation of assessment, interventions and reassessments will ensure continuity of pain management strategies.

A useful strategy for reassessment is asking Veterans/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).

Remember that some Veterans may be stoic and not report pain.
Also, remember that any Veteran whether they have served in dangerous duty assignments or not, might have PTSD, which can cause anxiety, which can increase the perception of pain.
There are several common syndromes experienced by patients at the end of life. It is important that nurses understand these different syndromes.

- **Nociceptive pain syndromes:**
  - Examples of somatic nociceptive pain syndromes include arthritis, bone metastases, oral mucosa infection or mucositis, and skin lesions.
  - Examples of visceral pain syndromes include tumors occupying the liver/pancreas/spleen; ascites from malignant causes, end-stage cardiac disease or cirrhosis; or abdominal cramping due to AIDS associated diarrhea.

- **Neuropathic pain syndromes. Examples include:**
  - Postherpetic neuropathy (shingles-occurs in immunocompromised and elderly patients).
  - Diabetic neuropathy (burning in the feet and hands).
  - HIV associated peripheral neuropathy.
  - Chemotherapy induced peripheral neuropathies related to paclitaxol or vinca alkaloids (such as vincristine and vinblastine).
  - Lower extremity neuropathic pain due to spinal cord injury.
  - Generalized neuropathic pain after stroke (central post stroke syndrome, usually associated with stroke in the thalamus), and many others.
  - Phantom limb/stump pain are both types of neuropathic pain (caused by damage in the nervous system). Pain sensations can be activated or worsened by stress. Stress often triggers a part of the brain that turns up the abnormal signals from the part of the brain where phantom limb pain is encoded or increases the firing of the damaged peripheral nerve or neuroma in the stump.
- As of June 1, 2015, there were 1645 military personnel who suffered amputation(s) during: Operation Freedom’s Sentinel, Operation Inherent Resolve, Operation New Dawn, Operation Iraqi Freedom, and Operation Enduring Freedom the Operation Enduring Freedom (OEF) and OIF conflicts (Fischer, 2015).
When addressing pain and suffering, it must be done so in a comprehensive way. Paying attention not only to the physical aspects, but also assessing the toll that pain plays psychologically, socially, and spiritually is important (Ferrell & Coyle, 2008; NCP, 2013). Pain is usually not an isolated symptom, but affects the whole person. When Veterans (patients) attempt to tell the healthcare team that they have pain, and it is diminished, dismissed, ignored, or doubted, this can lead to suffering. Nurses have a moral responsibility to advocate and obtain pain relief and hence decrease suffering (Ferrell & Coyle, 2008).

Veterans may report pain, but it may be an indication of other “suffering.” Escalating doses of opioids may not be the answer in relieving the pain. A thorough assessment is needed and consultation by other disciplines, such as chaplain, psychologist, and social worker may be warranted.
Older adults: Pain is often not assessed in older adults. Those 65 years of age or older are more likely to encounter persistent and/or acute pain as they age. Pain often has atypical presentation in the older adult. Pain may present with mental status changes, such as confusion or agitation. Less likely to admit to having pain because of fear of addiction, 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 reaction (Derby et al., 2015). Elderly with moderate to severe pain, pain-related functional impairment or diminished quality of life due to pain should be considered for opioid therapy (AGS, 2009).

Non-verbal or cognitively impaired persons/unconscious patients: (Refer back to slides 15 & 16 in this module).

Those who deny pain: Be aware that many Veterans may be stoic and not want to admit they have pain.

Uninsured and underserved individuals: Cost is a major barrier to providing effective analgesia at the end of life. Many analgesics (particularly the more sophisticated 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. Pharmaceutical companies often have patient assistance programs, which
provide analgesics at reduced cost. Also, many Veterans may not have a primary care provider who has over-seen their care.

- History of *addictive disease*.

- *Psychiatric disorders*: Be aware and assess Veterans who have both post-traumatic stress disorder (PTSD) and chronic severe pain (ACPA, 2014 & 2016; VA, 2015b). Assess and manage non-PTSD related co-morbid psychiatric conditions.
It is important that nurses communicate their pain assessment to members of the interdisciplinary team so that appropriate pain management can be implemented.

- Describe the intensity and quality 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).
- Report to the physician if the Veteran is reporting the same pain or a different pain (intensity, location). This gives other healthcare professionals essential data when modifying the treatment plan. This also allows the nurse to serve as a patient/Veteran advocate. (An example of this is when a nurse reports that the Veteran has increasing pain, but it is later found out that the new pain was due to the person being constipated. So accurate/specific assessment is vital).
- Documentation should take place in a visible area of the chart. The American Pain Society recommends making pain the "fifth vital sign", documenting pain on the same forms where temperature, pulse, respiratory rate, etc. are recorded. It is also important to document pain reassessments and effectiveness of drug/non drug response to interventions.

Note: The VA has a document entitled “Pain as the 5th Vital Sign Toolkit” that can be accessed for teaching and clinical purposes. Retrieved March 28, 2016 from http://www.va.gov/PAINMANAGEMENT/docs/TOOLKIT.pdf
It is important that as we have opportunities to advocate for our patients with pain, that we communicate properly to other team members about the pain. Below is a scenario featuring an unhelpful and helpful conversation.

- **Unhelpful:** “Dr. Jones? This is Jane Brown from 12 West. Your patient, Mrs. Smith has pain. What are you going to do, Dr. Jones?”
- **Helpful:** “Dr. Jones? This is Jane Brown from 12 West. Mrs. Smith has a pain intensity score of 9 on a 0-10 scale; she describes the pain location in her right thigh where she has bone metastasis; the pain is aching and throbbing and is worse when she stands or walks. She was unable to participate in physical therapy today because of the pain. We have been giving her liquid morphine 10 mg every 3 hours, which reduces the pain to about a 7, but this only lasts about one hour. Fortunately, she denies any side effects to the morphine. And looking at her medication list, she is not on any other medications for pain. What do you think we should do?”
Discussion and Summary

- Think about a Veteran you have cared for in the past week who had pain issues.

- Reviewing the assessment slides from 14-30, role play how you would assess the pain.

This concludes Section II: Pain Assessment
In this third section of four, a review of the following will be presented:

- Analgesics can be classified generally in classes of nonopioids, opioids, or adjuvants.
- Close collaboration with physicians, advanced practice nurses and pharmacists is essential to optimum use of drug treatments.
• Acetaminophen acts as an analgesic and antipyretic (not an anti-inflammatory). Acetaminophen should be considered as initial and ongoing pharmacotherapy in the treatment of persistent pain, particularly musculoskeletal pain, owing to its demonstrated effectiveness and good safety profile (AGS, 2009).
  ➢ *Contraindications* of giving acetaminophen include liver failure and those who drink more than 2-3 alcoholic beverages/day. When taking a medication history of a Veteran, be aware of other drugs that contain acetaminophen (e.g. Vicodin, Lortab, Percocet, Darvocet, etc.)
  ➢ Geriatric dosage maximum of acetaminophen is 2,000 mg/24 hours.

• There are two types of nonsteroidal anti-inflammatory drugs (NSAIDs) – selective and nonselective (APS, 2008). Nonselective examples include: Aspirin, ibuprofen (e.g., Motrin®, Advil®, Nurprin®, Rufen®), naproxen (e.g., Naprosyn®, Aleve®). NSAIDs inhibit prostaglandins by blocking cyclooxygenase. Prostaglandins are rich in the periostium of the bone and in the uterus, as well as other locations. Thus, NSAIDS are useful in relieving bone pain and dysmenorrhea and in many other pain syndromes. NSAIDs are anti-inflammatory, analgesic and antipyretic.
  ➢ *Contraindications* to use include peptic ulcer disease and chronic kidney disease (AGS, 2009).
  ➢ Geriatric use is limited to short term for inflammatory conditions.
  ➢ Unlike the opioids, the 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.
The selective cyclooxygenase-2 inhibitors were hypothesized to provide analgesia with reduced risk of gastrointestinal bleeding.

The only drug approved in the U.S. is celecoxib (Celebrex®). 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, although the public often perceived an advantage due to direct-to-consumer marketing.
- Locally, NSAIDs migrate through the gastric mucous and into epithelial cells that line the stomach. Systemic effects of NSAIDs are largely through the inhibition of prostaglandin synthesis. Decreased prostaglandin synthesis results in decreased epithelial mucous to coat the stomach, decreased mucosal blood flow, and decreased epithelial proliferation. Use of a protein pump inhibitor (PPI) such as omeprazole can be used to prevent gastric ulcers.

- Platelet aggregation is inhibited by NSAIDs, thus bleeding is a potential risk. This effect is reversible by stopping the NSAID.

- Renal dysfunction can occur due to NSAIDs, especially when patients are dehydrated. This effect is due to the inhibition of renal vasoactive prostaglandin, altering the blood flow within the arterioles of the kidneys. This may affect the glomerular filtration rate. Urine output diminishes. This effect is reversible by stopping the NSAID.
  - It may be difficult to assess hydration at the end of life. 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 adverse effects increases with the concurrent use of NSAIDs and corticosteroids.
Opioids work to relieve pain by acting directly on the central nervous system. Examples (Sample trade names are in parentheses. This list is not inclusive and is meant to provide the participant with examples only: Codeine; morphine (e.g., MS Contin®, Oramorph®, Kadian®, Avinza®, Roxanol®); hydrocodone (e.g., Vicodin®/Lortab®); hydromorphone (e.g., Dilaudid®); fentanyl (e.g., Duragesic®); methadone (e.g., Dolophine®); oxycodone (e.g. OxyContin®, Roxicodone®, Roxifast®); oxymorphone (Opana®) and hydrocodone bitartrate (Zohydro ER®).

Methadone has unique properties that may promote its use in pain management. 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. Another advantage is its long half-life. Methadone can usually be given every eight hours, providing long lasting relief and allowing most patients the ability to sleep through the night. However, this long half-life can make titration difficult. Increasing dosage should be done gradually. Finally, methadone is very inexpensive, another critical attribute, since cost can be a significant barrier. Due to the complexity in using methadone for pain, some recommend not trying to do equianalgesic conversions. Current guidelines are available from the American Pain Society (Chou, 2014).

Meperidine (Demerol®) is not indicated in end-of-life care. Meperidine is metabolized to normeperidine in the liver, which is then excreted through the kidneys. In the face of renal dysfunction, normeperidine is not excreted, and therefore, accumulates in the blood stream. Because normeperidine is toxic to the central nervous system, these patients are
at risk for seizures. Seizures have been reported in healthy individuals receiving just a few doses of meperidine. Meperidine's oral bioavailability is poor, such that 50 mg of oral meperidine is approximately equal to 650 mg of aspirin. Finally, meperidine is painful when given by injection. Meperidine is referred to as pethidine in most other countries.

- Mixed agonist-antagonists: Examples (Sample trade/brand names are in parentheses. The list is not inclusive and is meant to provide the participant with examples only.) Butorphanol (Stadol®), nalbuphine (Nubain®), pentazocine (Talwin®) and buprenorphine (Buprenex®). The mixed agonist-antagonists are not recommended in the treatment of chronic pain. They have ceiling doses (increases beyond a certain dose no longer produce increased relief), create a high rate of psychotomimetic effects (e.g., hallucinations and disorientation), and can produce the abstinence or withdrawal syndrome if patients are also taking pure agonist opioids (Miaskowski et al., 2005) and should not be used for individuals who are opioid-naïve (Chai et al., 2014). Withdrawal includes agitation, abdominal cramping, diarrhea, runny nose, tearing, yawning, and "goose bumps."

**Note:** Check the analgesics available on formulary at VA and non-VA facilities.
• Respiratory depression is greatly feared, yet rare, especially in end-of-life care. Respiratory depression is almost always preceded by sedation, thus, in most cases, the health care 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. Patients with respiratory rates as low as 6 or 8/minute can be considered normal if the oxygenation seems normal. This is particularly true if the patient is sleeping. 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 or Narcan®). This can precipitate the abstinence syndrome and reverse all the analgesic effect of the drug, so this must be used carefully. To prevent withdrawal while reversing the respiratory depressant effect, mix one ampule of naloxone (0.4 mg) in 10 ml of sterile water or saline. Administer 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, naloxone may need to be re-administered once its antagonistic effect wears off. Also, naloxone is absorbed in fat and this may reduce the intravascular availability of drug. In some patients, the dose may need to be administered every 10 to 15 minutes. Thus, careful monitoring of the patient's sedation, respiratory status, oxygenation status, and analgesic state is indicated.

• Constipation is a significant effect of opioid therapy and can worsen other symptoms common at the end of life, 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 resorption 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 is needed to counteract this effect. Much like opioid dosing, the dose of laxative/softener is titrated based upon the frequency and consistency of bowel movements. This therapy must be considered upon initiation of opioid therapy and 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 to the constipating effect of opioids. (See Module 3: Symptoms for more details).

• **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 (Ritalin®) may be beneficial (Chai et al., 2014).

  **Note:** For frail older adults with cardiovascular co-morbidity, a reduced dose of methylphenidate should be considered.

• **Urinary retention** is more common in opioid naive patients and is most common with spinal delivery of medications (e.g., epidural or intrathecal). Tolerance occurs to this effect, usually within a few days.

• **Nausea and vomiting** can occur. Treatment includes antiemetics or rotating to a different opioid. Tolerance occurs to this effect. See Module 3 for more information regarding the management of nausea and vomiting.

• **Pruritus** (itching) can occur, more commonly with spinal delivery of opioids. STolerance occurs within a few days.

**Note:** Allergic reactions to opioids are extremely rare and are usually due to preservatives, antioxidants, dyes and other additives. Veterans may state they are allergic, but upon further questioning, they may have developed nausea and vomiting when given a particular opioid. This is an opportunity to educate patients regarding allergic responses versus adverse effects. The only absolute contraindication to the use of an opioid is a history of a hypersensitivity reaction (e.g., wheezing, edema). In the rare event that a patient describes a true allergic reaction, one might begin therapy with a low dose of a short acting synthetic opioid (e.g., intravenous fentanyl), or try an intradermal injection as a test dose.
Discussion

• Which of these adverse effects do you see most often in your clinical setting?
• How do you prevent these effects?
• How do you work with the interdisciplinary team to treat these effects?
• Adjuvant analgesics or co-analgesics refer to medications for multipurpose use, chronic neuropathic pain, and musculoskeletal pain.

• Adjuvant analgesics consist of antidepressants, anticonvulsants, local anesthetics, corticosteroids and others (APS, 2008; Pasero & McCaffery, 2011).
The mechanism of analgesic effect of tricyclic antidepressants appears to be related to inhibition of norepinephrine and serotonin. These agents are useful in the treatment of neuropathic pain states. Desipramine (Norpramin®) is used in older adults because it has less anticholinergic side effects. Nortriptyline (Pamelor®) produces less cholinergic effects but should be taken at bedtime.

- Side effects of tricyclic antidepressants include anticholinergic effects such as dry mouth and constipation.
- Cardiac arrhythmias, conduction abnormalities, narrow-angle glaucoma, and clinically significant prostatic hyperplasia are relative contraindications to the tricyclic antidepressants. These medications must be titrated slowly (Chai et al., 2014).
- This class of medications is listed on the Beers list (review Module 1) and should be used with extreme caution in older adults.

- Atypical antidepressants (SNRIs or norepinephrine reuptake inhibitors) block serotonin and weakly block norepinephrine reuptake. Agents such as venlafaxine (Effexor®), and duloxetine (Cymbalta®) are being used for chronic neuropathic pain.

- There is little evidence that selective serotonin reuptake inhibitors (SSRIs) provide analgesic effects (Paice, 2015; Pasero & McCaffery, 2011).

**Note:** It is important to check what medications are on the national VA formulary.
Many anticonvulsant medications can be used as adjuvant therapy in treating pain. Antidepressants and anticonvulsants are considered first-line therapy for neuropathic pain syndromes. Older anticonvulsants, such as carbamazepine (Tegretol®), block sodium channels. This blocks the conduction of pain through sensory neurons. As a result, it is believed these compounds are useful in the treatment of neuropathic pain, especially those described as "shooting". Adverse effects such as liver dysfunction and aplastic anemia, necessitate frequent monitoring of blood chemistries (specifically liver function tests) and hematology profiles. Special considerations are necessary for older Veterans.

- Gabapentin (Neurontin®) has a different mechanism of action, reducing neuronal calcium currents by binding to the alpha-2-delta subunit of calcium channels. The analgesic doses of gabapentin ranges from 900-3600 mg/day. Dose may need to be adjusted for renal insufficiency. However, gabapentin can cause sedation and dizziness.

- Pregabalin (Lyrica®) works in a similar fashion with fewer side effects and easier dosing (Chai et al., 2014).

- It is important to start low and go slow to minimize adverse effects. Never abruptly discontinue an anticonvulsant.
Local anesthetics work in a similar manner as the older anticonvulsants, by inhibiting the movement of sodium ions across the membrane of the sensory nerve. This prevents the transmission of pain along the neuron.

Useful in relieving neuropathic pain, local anesthetics can be given
- intravenously (e.g., lidocaine),
- spinally (e.g., epidurally or intrathecally, usually bupivacaine [Marcaine®]),
- topically where the skin is intact (EMLA® cream and Lidoderm®) (Pasero & McCaffery, 2011)
Corticosteroids inhibit prostaglandin synthesis and reduce edema surrounding many types of tissues. These drugs are useful when treating neuropathic pain, bone pain, and visceral pain.

- Corticosteroids can be used for a variety of cancer pain syndromes, such as somatic bony pain, neuropathic pain related to nerve compression, headache secondary to increased intracranial pressure.
- Dexamethasone (Decadron®) produces the least amount of mineralcorticoid effect (changes in sodium and potassium excretion due to effect of the drug on the adrenal glands), and is often preferred at the end of life. Standard doses may range widely, with doses as high as 16-24 mg/day or higher.
- Benefits include improved energy and appetite.
- Side effects may include psychosis, hyperglycemia and proximal muscle wasting. Due to its long half-life, dexamethasone should be ordered to be administered in the morning. This prevents sleeplessness when doses are given in the evening.
- Dexamethasone is highly glucocorticoid in its action and it should be used judiciously with diabetics.
In a study of cancer patients at 4 weeks, one week, and 24 hours before death, the oral route of opioid administration was continued in 62%, 43%, and 20% of patients, respectively. Approximately 80% of patients may need alternative routes prior to death.

- **Oral**: There is a misconception held by professionals/lay persons that IV, IM or SQ 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. Transitioning patients to oral opioid as soon as they can tolerate fluids/diet can provide better pain control with fewer side effects. Oral medications are available in various formulations: Immediate-release tablets/capsules (e.g., MS IR) or long acting (sustained-release) tablets (e.g., MS Contin®, OxyContin®, Oramorph®). 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 many oral medications when patients can no longer swallow.

- **Sublingual (SL)**: Most opioids are water soluble – they do not easily cross mucous membranes. When liquid morphine, oxycodone or hydromorphone are given under the tongue or in the cheek pouch, they are absorbed by trickling down the back of the throat. The SL dose is the same as the oral dose and the onset is the same as oral delivery – peaks in approximately 60 minutes.

- **Mucosal/buccal or sublingual**: Oral transmucosal fentanyl citrate (OTFC or Actiq®) is composed of fentanyl on an applicator that the patient rubs against the oral mucosa to provide rapid absorption of the drug. This formulation is particularly useful for breakthrough pain. Therapeutic plasma levels of the drug are achieved within 5-15
minutes of application. 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 change. Careful titration is necessary, as the baseline opioid dose does not predict the OTFC dose. A buccal preparation of fentanyl (Fentora®) is a tablet that provides rapid onset of analgesia (Paice, 2015).

- **Rectal (also stomal/vaginal):** Thrombocytopenia 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 (Paice, 2015). 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 70%-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. Because the vagina has no sphincter, a tampon covered with a condom or an inflated urinary catheter balloon may be used to prevent early discharge of the drug. There is limited research on this technique.

- **Transdermal:** Currently, the only pure agonist opioid formulation for transdermal delivery is fentanyl. The patch is placed every 72 hours over non-hairy skin, non-edematous 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 nor for patients who are opioid-naive. The effects of fever, cachexia, obesity, and other factors may alter drug distribution. 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.

- **Topical:**
  - Topical capsaicin is used for neuropathic pain states. Gloves should be worn and/or hands should be washed after application to prevent accidental contact with eyes or open tissues, resulting in burning.
  - Topical lidocaine and other local anesthetics (e.g., EMLA®) can be used for isolated, brief pain conditions. A cloth patch with 5% lidocaine (Lidoderm®) is approved for the relief of pain associated with postherpetic neuropathy.
  - 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. This prevents 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. One exception to this is the use of morphine cream for painful decubiti, when the skin is open.
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 (approximately 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.

Nasal: Currently, the only commercially available nasal preparation is the mixed agonist-antagonist butorphanol (Stadol®). This drug is not recommended for chronic pain management.
Spinal routes (epidural or intrathecal) allow delivery of drugs in combinations, including opioids, local anesthetics, and/or alpha-adrenergic agonists (Paice, 2015).

- 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.
In your clinical practice, do you use combinations of nonopioids, opioids and/or adjuvants to treat pain?

You are caring for this Veteran post-operatively and he is receiving Morphine 6 mg. IV/hour via PCA with pain reports of “0-1.” The Veteran states he is comfortable.

- Knowing that many Veterans have multiple sites of pain, how would you go about assessing his arthritis and phantom pain? What medications would be best to consider?
- What other interdisciplinary team members would you want to include in the care of this Veteran?

This concludes Section III: Pharmacologic Therapies
In this final section, a review of the following will be presented regarding *Principles of Pain Management*:

- WHO 3-step analgesic ladder
- Treating and preventing adverse effects
- Long acting medications
- Equianalgesia
- Opioid rotation
- Addictive disease
- Cancer therapies to relieve pain
- Interventional therapies
- Non-pharmacological techniques
- Nursing role
The WHO ladder is a guide to selecting the initial analgesic choice and dosing. Continued reassessment is needed to modify the treatment plan based on the patient’s response (WHO, 2015).

- When patients present with mild pain (approximately 1-3 on the 0-10 scale) a nonopioid should be prescribed, with an adjuvant drug if the Veteran has neuropathic pain.
- If the pain is moderate (4-6) add opioids in low doses and titrate upward as needed. The nonopioids and adjuvants may also be continued and appropriately titrated.
- If the pain is severe (7-10), add higher doses of the opioid. The nonopioids and adjuvants may be continued. If the patient presents with severe pain, do not start at the bottom rung. Rather, begin at the appropriate level for that Veteran’s pain and titrate as needed to achieve pain relief.

Limitations:
- One limitation of the ladder is the belief that weak opioids (e.g. codeine) must be used in Step 2. In fact, smaller doses of strong opioids (e.g. morphine), are just as effective and preclude later switching between drugs.
- Another limitation is the addition of a Step 4 to include interventional therapies.
- The Hospice Item Set (CMS, 2014) scores pain intensity on a 0-10 scale with the following parameters:
  - None: Patient’s pain severity score is none. This would include a score of 0 on a 10-point numeric scale or equivalent on verbal, visual, other numeric, or staff observation scale.
- Mild: Patient’s pain severity score is mild. This would include a score of 1–3 on a 10-point numeric scale or equivalent on verbal, visual, other numeric, or staff observation scale.
- Moderate: Pain severity score is moderate and includes a score of 4–7 on a 10-point numeric scale or equivalent on verbal, visual, other numeric, or staff observation scale.
- Severe: Pain severity score is severe and includes a score of 8–10 on a 10-point numeric scale or equivalent on verbal, visual, other numeric, or staff observation scale (CMS, 2014).
• Anticipate, prevent, and treat predictable adverse effects.

• For example, the one side effect of opioids in which tolerance never occurs is constipation. As such, most Veterans prescribed an opioid will also require a pro-motility/stimulant agent which causes the bowel to contract and move stool through the intestines (e.g., senna) and/or an osmotic, which pulls water into the bowel and softens the stool (e.g., docusate, milk of magnesia, lactulose, Miralax®). Notable exceptions include those with HIV-associated diarrhea, pancreatic insufficiency associated with pancreatic cancers, some antibiotics, and those with pre-existing diarrhea.
When using long-acting opioids, follow these principles:

- **Sustained or extended-release** long-acting formulations for around-the-clock dosing should be used for continuous pain syndromes. This is an important consideration if the patient is cognitively impaired. Sustained-release tablets (e.g. MS Contin®) peak at approximately 4 to 5 hours post-dose and therapeutic levels persist for a 12-hour period for most patients (appropriately 25% of patients require 8 hours dosing). Be sure to base the administration schedule on the analgesic’s duration of effect. It is best to use sustained release opioids for scheduled dosing and always use immediate release opioids for rescue dosing/breakthrough pain.

- **To initiate** an analgesic for around-the-clock analgesia, begin with immediate-release formulations available to the patient as needed to relieve pain. Once the patient has achieved pain relief for 24 to 48 hours, calculate the 24 hour dose of opioid and convert to long-acting formulation. For example, the patient who has been taking 60 mg of liquid morphine in a 24 hour period may be converted to 1). MS Contin® 30 mg po q 12 hours or 2). OxyContin® 20-30 mg po q 12 hours or 3). Duragesic® patch 25 mcg every 72 hours.

- Immediate-release formulations should be made available for *breakthrough pain*. 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).

- 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 MS Contin® 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, since the peak effect of oral opioids is one hour.

- **Scheduled dosing** will maintain even serum drug levels and provide consistent relief. Frequent breakthrough dosing requires a change in the scheduled long-acting drug dose.

  - **Oral** breakthrough dose is approximately 10%-20% of the oral 24 hour baseline dose. Intravenous/subcutaneous breakthrough dose is approximately 50% to 100% of the hourly intravenous rate. Peak effect of intravenous/subcutaneous opioids (except fentanyl) is approximately 15 minutes; it is safe to repeat dose every 15 minutes if patient is not sedated.
  
  - 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.

- **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.

- Remember: a Veteran may have more than one site of pain
When changing to a different analgesic or route of administration, use equianalgesic doses.

Reduce the medication dosage by 25% when rotating to a new analgesic or changing the route of administration.

**Note to Faculty:** At this point, provide opportunities for participants to practice converting IV opioids to po, po to IV, IV to fentanyl patch, etc.
Step #1: Calculate the 24 hour dosage of IV morphine
- 4 mg IV/hour x 24 = 96 mg IV/24 hours

Step #2: Calculate the oral dosage
- Ratio for morphine IV to PO is a 1:3 (96 mg IV/24 hours x 3 = 288 mg PO/24 hours)
- Include the breakthrough boluses (8-10mg IV/24 hours = 24-30 mg PO/24 hours)
- Total PO morphine = 312-318 mg
- MS Contin = (Doses available 15, 30, 60, 100, & 200 mg). You could give 100mg/8hrs or 130/12hrs. Reassess.
- Breakthrough (usually 10-20% of the total 24-hour dose of the routine opioid) = 30mg Immediate release, (IR) every 1 hour prn OR 60 mg IR q 2hrs prn. Reassess.
- Start with 30 mg IR and titrate as needed and reassess.
- Reassess, Reassess, Reassess for relief and effects
• Opioid rotation / opioid switching is done to improve pain relief and drug tolerability. 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.

• The systematic attempt at using various opioids is referred to as opioid rotation. The primary reason for considering opioid rotation is that the patient has become tolerant to the analgesic and/or experiences unacceptable adverse effects.
Assessment and treatment of pain in persons with an established addictive disease can be challenging. Screening tools such as the CAGE questionnaire may be helpful (Cut down, Annoying, Guilty, Eye-opener)

- Ascertain category of patient: Treatment is different for each group and risk stratification may be useful (Paice, 2015).
  1. Individual who used drugs or alcohol in the past but are not using now
  2. Patients in methadone treatment programs who are not using recreational drugs or alcohol
  3. Those using drugs or alcohol occasionally
  4. Patient who are actively abusing drugs

- Goals of care: The goal of substance abuse treatment is likely not complete abstinence, but harm reduction/controlled use with the hope of minimizing interference with effective symptom management. Set realistic goals for pain and addiction

- Suggestions for treatment include:
  - Use interdisciplinary approach
  - Hold frequent team meetings
  - Set limits and be consistent
  - Optimize use of nonpharmacologic interventions, nonopioids, adjuvants, and interventional treatments
  - Consider tolerance (remember that patients with opioid abuse history usually requires higher doses)
  - Use pill counts and urine screen as necessary
Further suggestions for treatment include
- Avoid parenteral injections if able to take medications orally.
- Rely primarily on long-acting opioids and minimize short-acting doses.
- Prevent withdrawal from opioids, benzodiazepines, alcohol, and other substances.
- Treat depression and comorbid psychiatric problems.
- If on methadone for maintenance, add different long-acting opioid for pain.
- Ensure consistency in implementation of pain management plan of care.
- Incorporate non-drug interventions with pain management regimen.
- Opioid consent forms may be necessary to outline goals of treatment, guidelines for the prescriber and the patient, and informed consent.
- Consider multimodal interventions.
Hospice care is a covered benefit for all enrolled Veterans and does not preclude the provision of therapies constructed with the Veteran’s goals of care. Although many community hospices cannot cover the high cost of some therapies (e.g., palliative radiation, surgery, chemotherapy, etc. to decrease pain and other symptoms), some health plans may consider reimbursing these services if the goal is truly palliative rather than cure. In some cases, anticancer therapies can be palliative.

- **Radiation**: 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 metastasis.
  - 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.

- **Surgery**: Surgery may relieve pain in selected cases. Known as “radiosurgery”, it is considered targeted therapy. 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 as this intervention is mostly likely with a life span greater than 3 months. Clear instructions must be provided, reinforcing the palliative goals of surgery rather than a curative intent, to avoid raising unrealistic hopes.

- **Chemotherapy**: Antineoplastic therapies, is the use of antitumor therapy to relieve symptoms related to the symptoms associated with malignancy such as hormonal therapy for patients with breast cancer and chest wall pain. Goals of care have to be clarified with an understanding that the treatment is palliative and not curative in nature (Paice, 2015; Sun, 2015). Unfortunately, little research has been directed at evaluating the analgesic effect of various chemotherapeutic regimens, focusing instead primarily on tumor regression. (Sun, 2015).

- **Other adjuncts:**
  - **Bisphosphonates**: inhibit osteoclast-mediated bone resorption and alleviate pain related to metastatic bone disease.
  - **Baclofen**: useful for spasm-associated pain
• **Neurolytic blocks**: Neurolytic blocks are useful when pain is well localized. The celiac plexus block for abdominal pain due to pancreatic cancer is highly effective and associated with few adverse effects (Bain et al., 2013). 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. Newer techniques continue to evolve.

• **Vertebroplasty**: Vertebroplasty is a procedure conducted percutaneously to strengthen vertebra that have been weakened by osteoporosis or cancer.

• **Kyphoplasty**: Kyphoplasty is a similar procedure except that a balloon is inserted into the vertebral body and then filled with acrylic.
The goal of using non-pharmacological interventions is to decrease the patients’ perception of pain by reducing pain intensity and increasing pain tolerance, increasing adaptive pain behavior and decreasing maladaptive pain behavior (i.e. exercise use of medications, attention-seeking, social isolation, etc.)

Cognitive-behavioral therapies (CTB): These therapies serve as a useful adjunct to analgesic therapies. Goal of CBT is the help patients gain greater cognitive and/or behavioral control over pain (Horgas et al., 2012)

- Cognitive techniques focus on perceptual and thought processes and reducing the intensity and distress that are a part of the pain experiences while behavioral techniques focus on modifying behaviors to help patients cope with pain.
- Examples include: relaxation therapy, education, distraction. CBT may not be appropriate for patients who are cognitively impaired.

Many disciplines (i.e. social workers, psychologists, chaplains, and physical therapists) have expertise in nondrug pain relief techniques (Noreika et al., 2016)

**Note:** If a Veteran is having new onset or exacerbation of PTSD, consider contacting a PTSD counselor at the VA or Veterans Center.
Physical pain relief strategies focus on promoting comfort and altering physiologic responses to pain (e.g., heat, cold, transcutaneous electrical nerve stimulation [TENS] units) and are generally safe and effective (Horgas et al., 2012). Physical measures produce relaxation and relieve pain (Paice, 2015).

- Heat/cold
- Aromatherapy
- Massage (Note that it is important to obtain permission before touching a Veteran, especially those who have experienced sexual trauma.) For further reading, see The Impact of Massage Therapy on Function in Pain Populations—A Systematic Review and Meta-Analysis of Randomized Controlled Trials: Part II, Cancer Pain Populations (Boyd C. et al. Systematic Review; Pain Medicine 2016; 17: 1553-68)
- Repositioning/bracing
- Electrical stimulation
- Acupuncture/pressure
- Music therapy

Complementary therapies: There are few data regarding the efficacy of complementary therapies (e.g., herbals, magnets, others) in relieving pain. Some of these remedies are culturally based. Patients should be encouraged to report the use of any complementary therapies to avoid interactions with other pharmacologic agents. Therefore, discussions and requests for information should be handled in a non-judgmental manner (HPNA, 2011; Kravits, 2015).

- Others: Pet therapy
Nursing Roles

- Meticulous assessment, planning and multifactorial interventions
- Veteran and family education
- Collaboration with colleagues
- Identify and rectify barriers
- Listening

By doing so, you and your colleagues will be able to practice more confidently and your future Veteran patients will benefit greatly.
While the focus of this module has been on assessment and treatment of physical pain, suffering and existential distress are also common at the end of life (Ferrell & Coyle, 2008). Pain relief at the end of life is contingent upon adequate assessment and use of drug and nondrug treatments.

- An interdisciplinary approach is essential for comprehensive pain management.

**Note:** For an extensive review of pain research conducted in the VA, see the *Journal of Rehabilitation and Research*, Volume 51, Issue 1, 2016.