Pain Assessment and Management: An Oregon Nurse's Responsibility

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How to Take This Course

Please take a look at the steps below; these will help you to progress through the course material, complete the course examination and receive your certificate of completion.

1. **REVIEW THE OBJECTIVES**

   The objectives provide an overview of the entire course and identify what information will be focused on. Objectives are stated in terms of what you, the learner, will know or be able to do upon successful completion of the course. They let you know what you should expect to learn by taking a particular course and can help focus your study.

2. **STUDY EACH SECTION IN ORDER**

   Keep your learning "programmed" by reviewing the materials in order. This will help you understand the sections that follow.

3. **COMPLETE THE COURSE EXAM**

   After studying the course, click on the "Course Exam" option located on the course navigation toolbar. Answer each question by clicking on the button corresponding to the correct answer. All questions must be answered before the test can be graded; there is only one correct answer per question. You may refer back to the course material by minimizing the course exam window.

4. **GRADE THE TEST**

   Next, click on "Submit Test." You will know immediately whether you passed or failed. If you do not successfully complete the exam on the first attempt, you may take the exam again. If you do not pass the exam on your second attempt, you will need to purchase the course again.

5. **FILL OUT THE EVALUATION FORM**

   Upon passing the course exam you will be prompted to complete a course evaluation. You will have access to the certificate of completion **after you complete the evaluation**. At this point, you should print the certificate and keep it for your records.

Course Introduction

Pain is the most common reason people seek health care in the U.S. (Ashburn & Lipman, 2004). Yet, unrelieved pain continues as a major public health epidemic. Causes of inadequate pain management have been identified as lack of knowledge by clinicians and the public, lack of priority for pain relief in the healthcare system, confusion between appropriate use and misuse/abuse of medications, negative misinformation about medications for pain, regulatory and legislative concerns, and lack of reimbursement for effective pain assessment and management.

Pain assessment and management is a core competency for health professionals and a basic right for all individuals seeking health care. This mandate was strengthened in 1999 when the Joint Commission on Accreditation of Health Care Organizations (JCAHO) (now the Joint Commission) implemented new standards to address pain and pain management in all healthcare settings accredited by the Joint Commission. Around the same time, the Veterans Health Administration launched a systems-wide effort to improve pain management for their patients. Healthcare practitioners are mandated to ask all patients about pain routinely, assess patients for pain at first point of contact, plan and implement strategies to reduce pain, and re-assess efficacy at routine scheduled intervals. Results of screening and assessment should be documented in a way that facilitates tracking and follow-up.

In acute care settings, pain is often identified as the 5th vital sign. Screening for pain and documentation of pain and pain relief ratings are completed at the same time as other routine vital signs like temperature, pulse and respiratory rate. In 2000, The American Nurses Association (ANA) House of Delegates endorsed the view of pain as the 5th vital sign. Pain is also identified as a quality indicator by the Federal Center for Medicare and Medicaid Services (CMS). Pain is one of CMS' publicly reported outcomes for long term care facilities, home care agencies, and acute care organizations. Anyone can access this information and compare one facility to another based on their performance on selected indicators.

Whether mandated or not, effective pain assessment and management are key components of quality health care and a basic right for all. However, in spite of published standards and guidelines existing for many years, unrelieved pain remains a significant public health problem. Education alone hasn't changed practice. Sustained improvements in clinical practice require professional and public education, an organizational commitment to identify standardized pain assessment and management as a priority, and implement policies and procedures to assure consistency, vigilance and competence.

The consequences of poor pain management are numerous:

- Prolonged pain and suffering destroys quality of life.
- Sleep deprivation, anxiety, depression, and other significant effects on daily living and function result from untreated pain.
- Pain causes difficulties with overall enjoyment of life, including work and family relationships.
- Pain causes long term physical and psychological consequences.
- Unrelieved pain in the U.S. costs more than 100 billion dollars annually (Pujol, Katz, & Zacharoff, 2007).

Pain is always subjective. It involves the perception of a sensation as well as a response to the sensation. Pain is always unique to an individual. Self-report, whenever possible, is the "gold standard" for understanding a person's experience with pain and pain relief. Only the person experiencing pain can know what his or her pain is like. For example, the perception of the individual experiencing postoperative pain may be quite different from the individual experiencing

crushing chest pain or from pain caused by cancer. The meaning of pain from childbirth is very different than pain at the end of life. Everyone responds differently, even if pain is similar.

All pain management is based on the **individual response of the person with pain**. Strategies that work for one person may not work at all for another person with similar pain. Algorithms can help with planning by using recommendations from published standards and guidelines, but individual responses are unpredictable and will vary significantly from person to person. Although many medications and other interventions are available for pain relief, there is no one medication or modality that provides adequate pain relief for all, even if pain is similar. The science of pain transmission and pain management are advancing daily so healthcare providers must remain current about the science and art of pain management and new pain management strategies in order to be able to provide optimal relief for people with pain.

The management of pain is multidisciplinary. Pain itself is multidimensional and requires the expertise of many disciplines to find an effective plan. A collaborative approach is necessary and should include the person with pain, nurses, physicians, physical therapists, psychological counselors, and family members, among others, in order to provide successful pain management. The primary focus of the healthcare team should be to assist the person with pain to establish goals and to achieve his/her goals regarding pain relief. We must thoroughly assess and reassess the patient to ascertain individual beliefs, goals, values, preferences, and practices in order to provide optimal pain management.

Core competencies for healthcare providers include a basic understanding of the pathophysiology of pain and pain transmission, skills for accurate screening and assessment in both verbal and non-verbal/non-responsive individuals, knowledge of pharmacologic and non-pharmacologic interventions for pain relief, advocacy skills, knowledge to educate the patient and his/her family, and the ability to individualize the pain management plan based on each unique set of patient needs.

Course Objectives

Upon completion of this course, the learner will be able to:

- Discuss the consequences of poor pain management for the person with pain.
- Differentiate between screening for pain and pain assessment.
- Describe core components of a pain assessment.
- Discuss medications for the treatment of mild, moderate and severe pain.
- Describe principles for using medications appropriately for pain.
- Identify steps an organization can take to make a commitment to improve pain management.

About the Author

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Carol Curtiss, MSN-BC, has been an advanced practice nurse since 1981. She is a nationally and internationally recognized speaker in pain and symptom management, end of life care, oncology care and communication skills. She is a clinical nurse specialist consultant and owner of Curtiss Consulting. Her work spans a variety of clinical settings, including acute care, ambulatory care, long term care, home care and hospice settings and she is Master Faculty for the American Society for Pain Management Nursing's Pain Management Certification Review Courses. She is a national trainer for the End of Life Nursing Education Collaborative (ELNEC) and Adjunct faculty at Tufts University School of Medicine, Boston, MA. Ms. Curtiss has presented more than 800 programs in 47 States and 11 countries outside the U.S. She co-authored *Cancer Doesn't Have to Hurt*, a book for the public on cancer pain management, as well as more than 40 other professional publications, and served as national president of the Oncology Nursing Society. She received the Oncology Nursing Society Distinguished Service Award in 1999 and the June L. Dahl Pain Management Lectureship: Leadership in Systems Change in 2003 from the Alliance of State Pain Initiatives. She is an active member of the Oncology Nursing Society, the American Pain Society, the American Society for Pain Management Nursing, and Sigma Theta Tau, Delta Mu Chapter.

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A Systems Approach to Improving Pain Management

Published standards and guidelines for all types of pain (Appendix A) are remarkably consistent in their recommendations for the assessment and management of pain. The Joint Commission used the principles in these publications to create pain management standards that require accredited organizations to demonstrate the following (JCAHO, 2003):

1. Recognize the right of patients to appropriate assessment and management of pain.
2. Screen for the presence and assess the nature and intensity of pain in all patients.
3. Record results of the assessment in a way that facilitates regular reassessment and follow-up (Note: documentation of reassessment findings are currently an important review issue for the Joint Commission).
4. Determine and ensure staff competency in pain assessment and management in the orientation of all new clinical staff.
5. Establish policies and procedures that support the appropriate prescribing or ordering of pain medications.
6. Ensure that pain doesn't interfere with participation in rehabilitation.
7. Educate patients and families about the importance of effective pain management.
8. Address patient needs for symptom management in the discharge planning process.
9. Incorporate pain management into quality improvement activities.

In order to improve pain screening, assessment and management for all patients throughout a healthcare system, organizations must make a systems-wide commitment to pain management. Pain must be viewed as a priority and an important clinical problem by administrators, clinicians, educators, and others. Continuous improvement is the key.

Strategies that can help an organization improve the way pain is assessed and managed include the following (Gordon, Dahl, & Stevenson, 2000):

1. Form an interdisciplinary work group which examines and re-examines pain management issues and practices with the goal of continuous improvement.

    a. Analyze current practice and look for areas to improve.
    b. Identify achievable goals.
    c. Use regular quality improvement processes to evaluate changes.
    d. The work of this group is continuous and on-going in order to identify new opportunities for improvement.

2. Create written standards for pain assessment and documentation to assure that pain is recognized, documented, and treated promptly.

    a. Base written standards and policies on published standards and guidelines.
    b. Include minimum required frequencies for screening, assessment, and reassessment of pain in all individuals.
    c. Select a standard published tool for screening and assessment of both cognitively intact and cognitively impaired/non-verbal individuals. Select alternative tools for those unable to use the standard tool.
    d. Document in a way that facilitates reassessment and follow-up.
    e. Identify steps to resolve issues of unrelieved pain.

3. Make information about pharmacologic and non-pharmacologic interventions readily available to clinicians as they plan care.

4. In writing, identify clear accountability for pain management.

5. Offer ongoing educational opportunities in pain management for staff, patients and families.

    a. Include information about pain management in orientation of new staff
    b. Identify pain assessment and management as core competencies for clinical staff during annual performance reviews.
    c. Eliminate unacceptable pain medications from formulary.

6. Persist, persist, and persist. Education alone will not change practice – systems must be in place to identify pain management as a priority and to assure patients receive attentive pain care.

Pathophysiology and Classifications of Pain

Pain affects all body systems, including immune response. Persistent unrelieved pain can permanently damage or "re-wire" the nervous system, causing a permanent hypersensitivity response to pain in the future. Pain destroys quality of life, increases fatigue, can cause sleep deprivation, poor concentration, depression, increased suffering, poor appetite and a host of other complications. Poorly managed acute pain delays mobility and healing and contributes to adverse events such as pneumonia and deep vein thromboses. Unrelieved pain in infants can result in behavior changes later in childhood (McCaffery & Pasero, 1999). Whenever possible, prevent pain and treat it aggressively.

Pain is both a sensory and emotional experience. Let's review the sensory portion of pain. The process of normal pain transmission is called nociception (pronounced *No-see-sep-shon*) and involves an extraordinarily complex process that we are learning more about daily.

The four major steps in nociception are transduction, transmission, perception and modulation. The process begins with **transduction** which occurs in the periphery. When thermal, chemical or mechanical noxious stimulus cause tissue damage, the damaged cells release sensitizing substances **(neurotransmitters)** that activate or sensitizes nerve endings that are preferential to noxious stimuli (nociceptors) and begin the process to relay the stimuli along the nervous system. Sensitizing agents released by damaged cells include: prostaglandins, bradykinin, serotonin, Substance P, histamine and others. These substances cause an ion exchange along the neuronal membrane creating an electrical charge called an **action potential**. The action potential moves the message from the site of damage to the spinal cord, the brain stem and thalamus for processing. This series of steps is called **transmission**. **Perception**, or the conscious experience of pain, occurs in the cortex of the brain. **Modulation** is the final process when neurons originating in the brain stem descend to the spinal cord and release substances such as endogenous opioids, serotonin and norepinephrine that attempt to inhibit the transmission of nociceptive impulses back to the periphery.

Pain is classified in several different ways. Pain is described as nociceptive, neuropathic, and mixed nociceptive and neuropathic pain. Pain resulting from the normal processing of stimuli described in the previous paragraph is called nociceptive pain. **Nociceptive pain** is further subdivided into visceral and somatic pain. **Somatic pain** arises from bone, joint, muscle, skin, or connective tissue injury, is usually well localized, and is often described with words like aching or throbbing. **Visceral pain** arises from obstruction to or pressure on visceral organs such as the gastrointestinal tract, liver capsule, pancreas and other hollow organs. Pain from obstruction often presents as poorly localized, while pain from distention of organ capsules is sometimes more easily localized. Visceral pain may also radiate to other parts of the body.

Neuropathic pain results from an abnormal processing of sensory input by either the peripheral or central nervous system. Pain may be present as a result of injury or as a result of abnormal processing in the nervous system, without evidence of injury. People with neuropathic pain describe it with words like, burning, stabbing, shooting, electric-shock-like, numbness, tingling, and other similar responses.

Centrally generated pain caused by injury to or irritation of either the peripheral or central nervous system is called **deafferentation pain**. Examples are phantom limb pain and burning pain occurring below the level of a spinal cord injury. Dysregulation of the autonomic nervous system, a malfunction causing autonomic abnormalities, is called **sympathetically maintained pain**. An example is Chronic Regional Pain Syndrome (CRPS1 and CRPS2), formally called Reflex Sympathetic Dystrophy (RSD) (McCaffery et al., 1999; St. Marie, 2002).

Peripherally generated neuropathic pain is caused by abnormal processing or damage to peripheral nerves. Examples are trigeminal neuralgia, nerve entrapment, post-herpetic neuralgia and diabetic neuropathy.

Understanding the type of pain helps providers select appropriate interventions to treat pain. Most nociceptive pain will respond to the use of nonopioids titrated to each medication's dose limits and opioids titrated to effect, along with non-drug interventions. Approximately 30% of neuropathic pain will respond to the same interventions as nociceptive pain. The remaining percentage of neuropathic pain often requires the use of co-analgesics (sometimes called adjuvant medications) like tricyclic antidepressants, anticonvulsants and others. Listening for cues from the patient's self-report, along with a thorough history and physical examination, helps identify whether pain is nociceptive or neuropathic.

Pain is also classified as acute or chronic (now called persistent pain). Pain may be constant, intermittent, intermittent with acute flares, or a combination.

> **Acute pain** is self limiting, usually of fairly short duration and improves as healing occurs. Changes in vital signs and diaphoresis caused by the sympathetic nervous system's "fight or flight" response often accompany acute pain. Examples of acute pain are acute fractures, pain from acute trauma, stress headache, and surgical wounds.
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> **Persistent (chronic) pain** does not go away on its own, may last longer than the injury or may occur without evidence of injury. With persistent pain, the sympathetic nervous system adapts and **vital signs rarely change,** even if pain is excruciating. In fact, the person may not "look" in pain at all, but may have a blunted, flat, "mask-like" expression on his/her face. Because people with persistent pain rarely look in pain and vital signs cannot be used to evaluate the presence of pain, self-report is the most reliable indicator of pain and pain relief. Examples of persistent pain are arthritis pain, pain from diagnoses like cancer, AIDs, multiple sclerosis, chronic regional pain syndrome (CRPS) or fibromyalgia.

Most healthcare professionals are taught to look for moaning, groaning, grimacing, muscle guarding, diaphoresis, and vital signs changes to evaluate pain. This data is accurate **ONLY** for acute pain! Individuals with persistent pain rarely demonstrate these changes and exhibit much more subtle signs of pain – lack of sleep, poor appetite, irritability, decline in function, and other less obvious signs and symptoms. Responses are even more blunted in people with dementia.

Differences in Individual Responses to Pain

Pain is a unique experience for each individual, even when the source of the pain is the same. Some of the reasons for these differences are physiologic responses, psychosocial views and experiences, and cultural and religious values and beliefs. A brief explanation follows.

Physiologic Differences

Each person has her/his own "built-in" pain relieving mechanisms. We all manufacture endogenous opioids called endorphins and enkephalins. These substances are released as an internal protection when an individual is in pain, laughs, exercises, or is under stress. Endogenous opioids and opioid analgesics we administer for pain actually attach to the same opioid receptors as endorphins and enkephalins and work to relieve pain. The amount of endogenous opioids is genetically mediated and differs markedly from person to person. Those with a great ability to produce endogenous opioids have a strong internal mechanism to relieve pain not enjoyed by those who manufacture lower amounts of the substances. Pain response is physiologically individual. Sleep deprivation, fatigue and other physiologic changes will also alter pain perception.

How an individual responds to pain medications is wide, variable, and unpredictable. Even with similar pain, individual responses to medications, even within the same family of medication, may be very different from person to person. For example, ask your family or friends what medication each prefers for mild pain. Some will say acetaminophen; other people will insist that aspirin, ibuprofen, ketoprofen, naproxyn sodium, or others work best for them. They have tried alternatives and know the medication that works best. Perhaps you also have a "favorite" medication for mild pain. Physiologically, we all respond differently to medications and there is no way to predict the response. When one medication in a class is ineffective, another in the same class may help. This applies to medications in all classes, including nonopioids, opioids and co-analgesics.

The amount of medication required to relieve pain varies widely and unpredictably in each person. There may be a 6-10 fold difference or more (clinically, sometimes 100 fold difference) in the amount of medication needed to relieve similar pain in two different people (McCaffery et al., 1999). Once again, response is variable and unpredictable. Therefore, titration to individual response and assessment and reassessment are imperative.

Psychological Differences

The meaning of pain often affects an individual's response to pain. For example, a woman struggling with infertility quickly forgets the pain of her childbirth experience. Compare this with the meaning of pain and response to pain in a 37-year-old woman suffering from severe rheumatoid arthritis whose pain causes an inability to concentrate on her work or to move about freely. The meaning attributed to pain will influence responses to pain.

Past experiences with pain and pain relief also affect the way a person responds to pain. Fear, anxiety and depression increase pain perception. Previous successful pain management experiences may give a person more confidence that pain can be relieved. Past experiences with unrelieved pain may increase anxiety in anticipation of a similar experience.

Cultural Values and Beliefs

An individual's values and beliefs will influence the way a person responds to pain, pain relief, and acceptance or rejection of interventions to treat pain. Each of us is taught or experiences a set of learned behaviors, including how to respond to pain. Some are taught to be stoic, others to

be verbal, and others to respond in ways that may be different from our own. We tend to be more comfortable and confident with our own ways of interpreting and responding to pain, and to undervalue responses of others that may be different from ours. Remember, there is no "correct" way to respond to pain – only "different" ways. The challenge is to suspend judgment when an individual responds differently from us and to accept a person's response to pain as unique, individual and correct for that person!

The meaning of pain, how one expresses pain, and acceptable treatments for pain may also be culturally influenced. For example, in some religions and some cultures, "voluntary pain" (enduring pain for a "greater good") is believed to result in benefits for the individual. In some cultures, expressing pain is seen as a sign of weakness. In other cultures, pain is not talked about at all because of concern that voicing pain may bring additional pain to family members. For other cultures, the expectation is that pain will be openly expressed and loudly voiced so that family members may comfort the individual and reduce the pain. Healthcare providers must include cultural assessment as part of the assessment process and understand an individual's values and beliefs as we design plans for pain relief with the patient and family.

Some questions to elicit beliefs about pain are (Lasch, 2000):

- What do you call pain? What words do you use?
- Why do you think you have this pain?
- What does this pain mean to your body?
- Do you have concerns or fears about your pain?
- What are the chief problems this pain causes for you?
- What kind of treatment do you think will work?
- What remedies have you already tried?
- Have you seen a traditional healer? Do you want to?
- Who in your family, if anyone, do you talk to about your pain? May I discuss your pain with this person?

Pain Assessment

Pain is always subjective and best described by the person with pain. In fact, self-report is the single most important piece of assessment data available. When a person is unable to self-report, even with existing assessment tools, healthcare providers can only guess about another's pain. Studies consistently show that healthcare professionals and families underestimate the presence and intensity of a patient's pain (Cohen-Mansfield, 2002; Marquie et al., 2003; Singer, Gulla, & Thode, 2002). A thorough clinical assessment, physical examination, and diagnostic tests, as needed, are essential. Never make assumptions. No two patients are alike, nor are two healthcare professionals alike. Everyone brings beliefs and disbeliefs concerning pain to the assessment process. When a person reports pain, find out more information to further assess pain.

Key elements that must be included in a pain assessment are a pain-related physical exam and questions about:

1. The person's **pain**: When asking about pain, use a variety of words like pain, discomfort or aches, not just the word pain by itself. (Note: many people reserve the word "pain" to describe severe pain and use other words like ache, sore, etc. for less strong sensations.)

    - Onset
    - Location
    - Quality
    - Severity
    - Intensity
    - Duration
    - Precipitating factors
    - Relieving factors
    - Type of pain, if possible
    - Ask for a pain rating on the pain scale

2. The person's **GOAL** for pain relief or comfort

3. The person's **pain relief**

    - How much relief is achieved?
    - How long does the relief last?
    - Does the pain return before the next intervention/medication?
    - What relieves pain best?
    - Ask for a relief rating on the pain scale

4. The **effect of pain *on the person in pain***

    - Effect on function or ADLs
    - Effect on quality of life
    - What does pain prevent you from doing?

        - Acute pain: may be turning, coughing, deep breathing, ambulating, participating in rehabilitation, etc.
        - Persistent pain: may affect sleep, activity, appetite, mood, function, energy ability to socialize, work, play, etc.

5. The presence of **side effects**

   - Are side effects present?
   - Is there a plan to manage them?
   - For persistent dosing of opioids, is constipation prophylactically managed and monitored?

6. The **plan**

   - Is the plan effective for this patient?
   - Indicate a timeframe for reassessment.
   - Are medications prescribed at intervals that match the actual duration of the medication?
   - Are medications titrated to response?
   - Are non-drug interventions integrated into the plan?
   - Does the person understand the pain management plan?
   - Can the person comply with the plan?
   - Do costs and access to medications impede compliance?
   - Is the person able to deal with technology at home?
   - Is the person able to manage medications?

Use of Screening Tools

Screening for Pain

Screening for pain simply means using a screening tool such as a 0-10 rating scale or faces scale to ask all patients/residents/clients whether or not pain is present and, if present, whether or not pain has changed since the last screening. When pain is reported on screening, a comprehensive pain assessment must follow. . Screening should be done, as indicated in written policy, at predetermined intervals – for example, every shift, or in ambulatory or home care settings, every visit. Pain is often treated as a vital sign in acute care settings and evaluated, at minimum, each time vital signs are taken and more often if pain is unrelieved. In home care and long term care, screening for pain should occur along with other important clinical concerns at every visit in home care and no less than daily in long term care. For example, in long term care, vital signs are not taken daily or even weekly unless there is a problem, but bowel screening occurs at least daily and sometimes more often. Screen for pain when screening for bowel function in long term care. Include a question about pain or comfort levels in routine questioning at each home care visit.

If policies exist indicating which screening tool to use, **and** the policy indicates a level of discomfort or pain that must be reported to licensed staff for further assessment, anyone can and should screen for pain. An example of such a policy is, "On a scale of 0-10, any report of pain at 3 or above OR any rating identified as unacceptable to the person with pain must be reported to the nurse (or other specific licensed provider) who will complete an assessment". With this policy in place, a certified/licensed nursing assistant, home health aide, physical therapy assistant, family member, or other individual can ask about pain as long as they are instructed to report pain ratings to a designated person who can complete an assessment and plan strategies for relief. The ability to recognize and report pain is a basic competency for any individual in health care who interacts with patients/clients/residents.

Record screening results in the same place where other important clinical information is documented, that is, in the medical record in a way that is easy to track and which facilitates re-assessment and follow-up.

When a person reports pain, **assessment must be completed to find more information about the problem**, and to design a plan to intervene in the pain. Screening and documentation are not enough. The goal is to identify and do something to reduce pain. Screening and assessment without intervening to reduce pain is considered poor care.

Steps for Screening

1. Develop and implement a written policy that identifies a minimum required frequency for screening (e.g., every shift or every visit) for ALL patients/residents/clients, and identifies a rating on the scale that requires further assessment and intervention. In addition to a rating, include "or any pain unacceptable to the patient" as part of the policy.
2. Select a standard tool appropriate for the individual patient/client/resident (see selected screening tools below).
3. Teach the person how to use the tool and the purpose of screening for pain.
4. Use the same tool for the person every time. Reinforce teaching.
5. Record ratings in the medical record in a way that can be easily tracked and followed over time.
6. When a person reports pain, complete a pain assessment to find more information about the pain and plan interventions to manage the pain.
7. Continue to screen as part of reassessment to evaluate the effectiveness of plan.

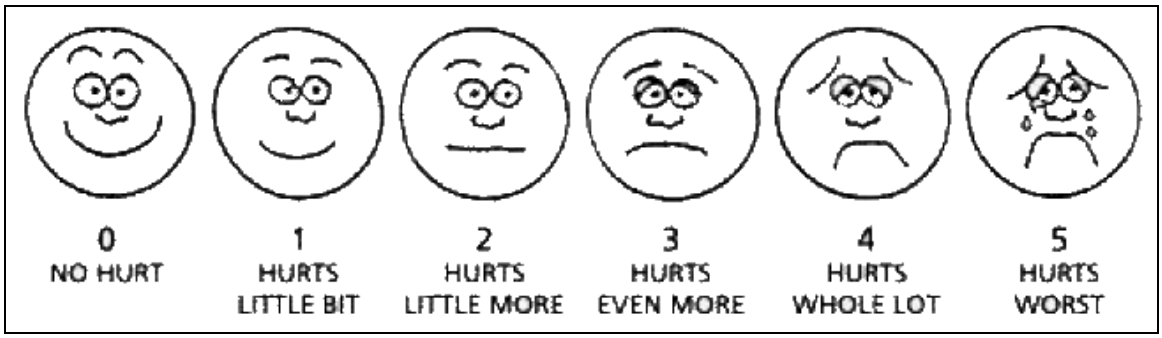
A variety of reliable and valid screening tools are published. One commonly used scale is the 0-10 numeric scale. Pain is rated from 0 (indicating "no pain") to 10, (indicating the "worse possible pain") (see Figure 1). For most people, pain reported at 1-4 is considered mild, 5-6 is moderate and 7-10 is severe (Cleeland et al., 1994). There are different variations of numeric scales that include a visual analog scale (VAS) or different ranges of numbers (e.g., 1-5). The Wong-Baker FACES Pain Rating Scale (with numerical aspect) is appropriate for some children, some mentally challenged adults, and some patients with mild cases of dementia (Wong & Baker, 1988). An important point is to select one scale that is appropriate for the developmental level and abilities of the individual and use that scale each time screening and assessment are done.

Figure 1. Selected Pain Rating Scales

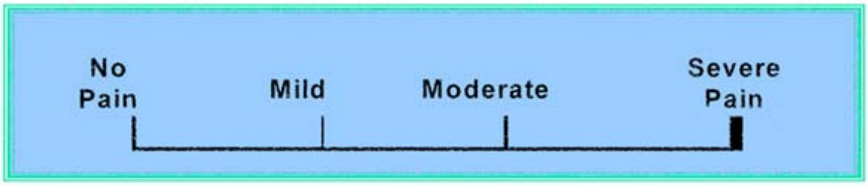
0-10 Rating Scale

0	1	2	3	4	5	6	7	8	9	10
No Pain										Worst Possible Pain

Wong-Baker FACES Pain Rating Scale (Wong et al., 1988)



Verbal Descriptor Scale



Screening and Assessing Pain in Non-Verbal Patients or the Cognitively Impaired

Currently, there is not a preferred, published reliable and valid scale to screen for pain in cognitively impaired people. The commonly used Pediatric FLACC scale (F= face, L=legs, A=activity, C=cry, C=consolability) is NOT reliable or valid in adults. However, many of the scales published for adults are variations of this scale, with adaptations reflecting behaviors commonly seen in cognitively impaired adults with pain. An article by Herr, Bjoro, and Decker (2006) includes a state-of-the-science review of the reliability, validity and usefulness of a variety of published tools to assess pain in the cognitively impaired. For additional examples of assessment tools, visit www.cityofhope.org/prc. Assessing pain and evaluating the response to pain interventions is challenging in nonverbal patients and in the cognitively impaired. Make no

assumptions based solely on diagnosis. Ferrell, Ferrell, and Rivera (1995) demonstrated that 83% of cognitively impaired individuals could use a variety of common rating scales to report current pain. Patients were unable to remember previous ratings, but could appropriately report changes in pain intensity. The most common scale used in this study was the 1-5 scale. Others have demonstrated that numeric scales, placed vertically instead of horizontally were easier for the cognitively impaired to use. A "show and tell" approach with repeated reinforcement, using the scale as a visual aid while asking about pain, has also been shown to be effective for some individuals. If the individual is unable to use numeric scales or face scales, try using a verbal descriptor scale (e.g., mild, moderate, severe) placed in a vertical rather than horizontal list (see Figure 2). Herr, Coyne, et al. (2006) place a thermometer next to this descriptor scale to provide a visual cue to the scale. Written by these same authors, the American Society for Pain Management Nursing (ASPMN) published *Pain Assessment in the Non-verbal Patient: A Position Statement with Clinical Practice Recommendations* in 2006.

Figure 2. Vertical Verbal Descriptor Scale

Worse possible pain
Very severe pain
Severe pain
Moderate pain
Mild pain
No pain

The hierarchy of pain assessment techniques recommended in ASPMN's position statement on pain assessment in the non-verbal patient include the following, in this order:

1. Use self-report, whenever possible
2. Search for a potential cause of pain
3. Observe patient behaviors
4. Surrogate reports from family or staff of pain behavior/activity
5. Attempt an analgesic trial

People who are unable to use a scale to report pain are at increased risk for poor pain management (American Geriatrics Society [AGS], 2002; American Pain Society [APS], 2003; Herr, Coyne, et al., 2006).

Behaviors in non-verbal people that indicate discomfort and pain are highly individual and can be very subtle. Astute observation and familiarity with the person are key to evaluating the possibility of pain. Learn as much about the person as possible. Ask family, the primary provider and other staff about usual behavior, usual response to stress and discomfort, and other personal information that might indicate the presence of pain. Look for SUBTLE changes in behavior – changes in sleep patterns, restlessness, lack of appetite, withdrawal from activity, groaning during or resisting transfer, unusual combativeness, swearing, refusing care, decreases in socialization, new wandering or confusion, and other new behaviors. If specific pain behaviors can be identified, be certain all providers know what the specific pain behavior is for that individual. Remember, the most common causes of confusion in the older adult are urinary tract infections, depression, delirium and dementia (McDonald, 1999). Unrelieved pain causes increased confusion as well. Careful and thorough evaluation is required; a multidisciplinary approach works best.

Tools to assess pain in the cognitively impaired have been published and they continue to be developed.

The *Checklist of Non-Verbal Pain Indicators* (CNPI) by Feldt (2000) addresses the following categories of behavior: Vocal complaints - non-verbal: facial grimaces or winces; bracing; restlessness; rubbing; and vocal complaints – verbal. A variety of different responses are identified in each category, allowing for differences in pain response. The person is observed for several minutes at rest and during movement (such as a transfer) and scored in each of the six categories during each of the two observation periods.

The *Discomfort Scale – Dementia of the Alzheimer's Type* [DS-DAT] (Hurley, Volicer, Hanrahan, Houde, & Volicer, 1992) identified the following areas of behavior as common pain indicators in the cognitively impaired. This tool also allows for a variety of responses under each category:

- Noisy breathing
- Negative vocalizations
- Sad facial expression
- Frightened facial expression
- Tense body language
- Fidgeting

These behaviors are observed for frequency, intensity, and duration over a five-minute period. According to Hurley et al. (1992), a five-minute observation is adequate to identify discomfort and rule out transitory and meaningless gestures or postures.

Examples of other tools include the Abbey Pain Scale, Serial Trials Interventions Scale (formerly the Assessment of Discomfort in Dementia or ADD tool), NOPAIN tool, and Doloplus 2. Each of these scales can be found at www.cityofhope.org/prc.

Screening for pain and assessing pain in the cognitively impaired is a challenge and is based on clinical knowledge and skills as well as a good amount of guess-work. Have a high degree of suspicion about the presence of pain and ask yourself or other care providers questions like:

- Does this person have a history of persistent pain?
- Does the person have a current problem/diagnosis that is likely to cause pain?
- Are there behaviors that could be indicating pain?
- Is pain a possibility?
- With this set of diagnoses, would a verbal person be likely to report pain?
- If "yes" to any of these questions, assume pain is present and treat it.

If pain is possible, treat it and monitor behavior. The cognitively impaired are at significant risk for under-treatment of pain. Look for hints that pain may be a problem and design plans that will relieve pain in this vulnerable population. Remember that a behavioral observation scale score cannot be used as a pain intensity score. Tools measure changes in behavior, not pain intensity. A high score on a behavioral observation scale should trigger a comprehensive assessment to look for potential causes of behavior change, including pain.

Ventilated and Intubated Non-Verbal Patients

Moderate to severe pain is common for people in critical care. When a person is intubated and ventilated, it is more difficult to assess pain, but self-report is still the gold standard. If a person is able to communicate in any way (e.g., eye blink, lift a finger, nod head, etc.), ask about pain routinely. If the person is unable to communicate, Gelinas, Fillion, Puntillo, Viens, and Fortier (2006) developed the Critical-Care Pain Observation Tool (CPOT) for adult, critically ill patients. The tool evaluates and scores four different areas including facial expression, body movements, muscle tension evaluated by passive flexion and extension of the upper extremities, and

compliance with the ventilator (for ventilated patients) OR vocalization (extubated patients). Remember that a patient who is receiving paralytic agents cannot use their body to “tell” you about pain. Anticipate and treat pain if there are potential causes of pain in critically ill patients.

Treating Pain

The best way to treat pain is to remove the source of pain whenever possible and aggressively prevent and treat pain under all circumstances. Preventing pain whenever possible is the goal for all types of pain, including procedural pain, persistent pain and acute pain. A multi-modal approach to pain management is most likely to succeed. A plan that integrates non-drug interventions, complementary interventions, and lifestyle changes, along with medications is most effective. For example, multimodal surgical pain management may include nonopioid analgesics, opioids, non-drug interventions (such as relaxation and imagery), positioning, and the use of music for distraction. Persistent pain from osteoarthritis may be treated with similar medications, along with weight loss, and an increase in exercise and physical therapy to keep joints supple. For all types of moderate to severe pain, medications are a key part of the plan.

Medication Use in Pain Management

The World Health Organization (WHO) established a three-step analgesic ladder to guide the selection of interventions to treat pain (see Figure 3 and Table 1). Nonpharmacologic interventions are incorporated with medications throughout the ladder (APS, 2003).

Figure 3. WHO Three-Step Analgesic Ladder

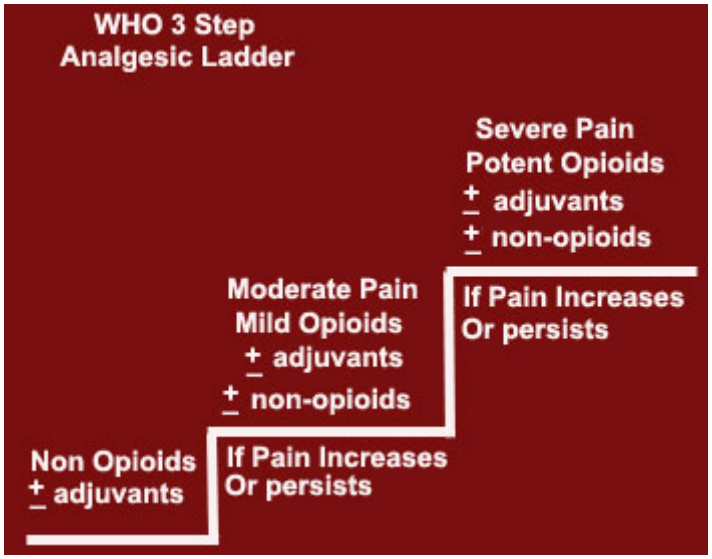


Table 1. WHO Three-Step Analgesic Ladder: A Systematic Approach	
Step 1: Mild Pain (for most people, pain at levels 1-3 on a 0-10 scale)	
Analgesic:	Nonopioid
Plus:	Co-analgesics as needed Nonpharmacologic intervention(s)
Step 2: Moderate Pain (for most people, pain at levels 4-6 on a 0-10 scale)	
Analgesic:	Opioid at starting doses May continue nonopioid, if helpful
Plus:	Co-analgesics as needed Nonpharmacologic intervention(s)
Step 3: Severe Pain (for most people, pain at levels 7-10 on a 0-10 scale)	

Analgesic:	Opioid titrated to effect May continue nonopioid, if helpful
Plus:	Co-analgesics as needed Nonpharmacologic intervention(s)
Step 4: Beyond the Ladder	
For pain unrelieved by Steps 1-3, complete assessment and risk/benefit analysis for: Epidural/intrathecal analgesia Nerve blocks Neurolytic blocks Other invasive procedures	
Source: Coyne (2003)	

Medications Commonly Used for Pain

- **Nonopioids** –This family of medications includes analgesics such as acetaminophen (Tylenol® and others) and nonsteroidal anti-inflammatory drugs (NSAIDs) like aspirin, ibuprofen and others.

- **Opioids** – (often called narcotics, an outdated term in pain management!) Common opioid analgesics are morphine, hydromorphone, oxycodone, fentanyl, methadone and hydrocodone. While meperidine (Demerol®) is also an opioid, it is contraindicated for persistent use and discouraged for acute pain in many settings (AGS, 2002; APS, 2003). Codeine and propoxyphene containing medications like Darvon® and Darvocet® are also in the opioid family, but are not recommended for pain management. When opioids are used for persistent pain, the following steps should be followed and documented (Federation of State Medical Boards of the United States, 2004):
    - Medical history, physical examination and comprehensive evaluation of the patient, including history of substance use disorders and the medical indication for the use of opioids.
    - Written treatment plan with objectives to determine treatment success and an exit plan if opioids are not effective.
    - Informed consent and agreement for treatment which should include risks and benefits, written agreements including expectations of both the provider and the patient.
    - Periodic review of the treatment and treatment objectives.
    - Consultation as needed.
    - Accurate and complete documentation in the medical record.
    - Compliance with Controlled Substances Laws and Regulations.

- **Co-analgesics or Adjuvants** – Co-analgesics or adjuvant medications are medications that were developed for the treatment of other diseases and are also used to treat some pain problems, especially neuropathic pain. Examples of co-analgesics include: tricyclic antidepressants, anticonvulsants, corticosteroids, and some antiarrythmics. Responses to co-analgesics are not predictable. For most co-analgesics, an approximately one to two week trial, with titration to response, is necessary to determine efficacy. Upward titration is usually needed for full effect, but if the medication is effective, pain relief often occurs at doses lower than those needed for the original indication of the medication.

Selecting Medications as Part of the Plan

Appropriate selection of medications is based on the etiology of pain and the person's response to pain medications. Selection is determined by the intensity of pain, the source of pain (e.g., bone pain versus pain from obstruction), and most important, by the individual's response to the pain medication. Individual assessment drives the selection of medications for pain and re-assessment of efficacy determines whether or not to continue use. Most analgesics reach steady state blood levels after four to five doses. If an analgesic is ineffective at steady state, continuing the medication at the same dose will not improve relief. Changes in the plan are necessary.

Table 2 lists commonly used nonopioid analgesics. These medications are used alone for mild pain and some moderate pain, and often given with opioids to treat some moderate pain, and most moderately severe and severe pain. When combining a nonopioid and an opioid analgesic, the nonopioid can provide a dose-sparing effect, achieving effective pain control with a lower dose of opioid. Upward titration is limited with medications containing both an opioid and nonopioid (Percocet®, Vicodin®, Lortab®, etc.) due to the daily dose limits of the nonopioid in the product. There are no dose limits on opioid analgesics.

Non-Steroidal Anti-inflammatory Drugs (NSAIDs) and Acetaminophen

Non-steroidal anti-inflammatory drugs (NSAIDs) and acetaminophen are used alone to treat mild and some moderate pain, and also used along with opioids to treat moderately severe to severe pain. These medications have a dose sparing effect on opioids for some types of pain. **All nonopioid analgesics have dose limits, beyond which there is no greater pain relief and the risk of toxicities increases.** Each has a maximum safe daily dose limit that must be carefully monitored.

Acetaminophen, while often grouped with the NSAIDs, is in a class by itself. It is an analgesic and antipyretic, but has little, if any, effect on inflammation. Excessive doses of acetaminophen cause liver toxicity and potential liver failure. Acetaminophen has a maximum daily dose of 4 grams/day in healthy people, and less than 2.5 grams/day in those with hepatic disease or in the frail, ill patient. Acetaminophen should be used with extreme caution in individuals with pre-existing hepatic disease (see Table 2).

NSAIDs like ibuprofen, aspirin, and others, act as pain relievers, cause an anti-inflammatory effect by inhibiting prostaglandin synthesis and act as antipyretics to treat fever. NSAIDs have many serious adverse effects, including GI ulceration and bleeding, renal toxicity and inhibition of platelet aggregation. Each has a maximum safe daily dose limit as well. Patients routinely using these medications must be carefully monitored (see Table 2).

Newer NSAIDs, called COX-2 inhibitors have little effect on platelet aggregation and diminish, but do not eliminate, the risk of GI toxicity. Recent studies show an increased risk of cardiovascular events with some COX-2 inhibitors, especially in high doses, resulting in two products being removed from the market in the U.S. Patient selection should be done only with a risk-benefit analysis (Pasero & McCaffery, 2001). Celecoxib (Celebrex®) is the only COX-2 inhibiting NSAIDS currently on the market in the U.S. (see Table 2).

Table 2. Commonly Used Nonopioid Analgesics

Drug	Average Dose	Dosing Interval	Maximum Dose in 24h	Side Effects	Comments
Acetaminophen (Tylenol)	500-1000 mg	4-6h	4 g **(<3 g in patients with liver dysfunction and in elderly)**	Minimal, if any, side effects.	Toxic to the liver in overdose. Present in many over-the-counter flu and allergy products.

Non-Steroidal Anti-Inflammatory Drugs (NSAIDS) (use with extreme caution in the elderly)					
Aspirin	500-1000 mg	4-6h	4000 mg.	*see below	Caution with hepatic/renal disease. Contraindicated in children with viral or respiratory illness and fever.
Choline Magnesium Trisalicylate (Trilisate)	500-1000 mg	8-12h	3000 mg	Lower incidence of GI bleeding, minimal anti-platelet activity	Caution with renal disease.
Ibuprofen (Motrin & others)	200-400 mg	4-6h	2400 mg	*see below	Caution with renal disease.
Naproxen (Naprosyn)	500 mg initial, 250 mg subsequent	6-8h	1500 mg	*see below	Caution with renal disease
Nabumetone (Relafen)	500-750 mg	8-12h	2000 mg	*see below	Caution with renal disease.
Ketorolac (Toradol)	30 mg IV initial, 15-30 mg subsequent	6h	150 mg first day, 120 mg thereafter (in elderly, 30 mg starting dose, 15 mg thereafter)	*see below	For short term use only. Use restricted to 5 days max. Caution with renal disease. Oral dose is lower than equivalent parenteral dose.
Celecoxib (Celebrex)	100-200 mg	12h	200-400 mg	Lower incidence of adverse GI effects	Contraindicated in sulfonamide allergy. No platelet effects. **Increases the risk of cardiac problems; patients should be carefully selected after a risk-benefit analysis.** Use lowest does possible.
* Monitor for common adverse effects: GI ulceration and bleeding, decreased platelet aggregation, and renal toxicity.					
Source: Massachusetts Pain Initiative (2008)					

Opioids

Opioids (often inappropriately called narcotics) are indicated for the treatment of moderate to severe pain. They must be titrated to individual response and **do not have a ceiling on dose**. In other words, you may use as much medication as needed to provide the best pain relief with the fewest side effects. There is not a daily dose limit for opioids, nor an upper limit to the amount of a single dose. Dosing is solely based on the response of the individual. Opioids include morphine, oxycodone, hydromorphone, fentanyl, methadone, hydrocodone, oxymorphone, and others. Predicting which medication will work best for an individual is not possible. Responses are highly variable and known only by using the analgesic and re-assessing its effects. Serial trials of different medications from the same family may be needed (APS, 2003). Tramadol (Ultram®, Ultracet®) is an atypical opioid that also has some nonopioid effects. Its maximum daily dose limit is 400 mg in younger people and 300 mg in the elderly. Tramdaol may lower the seizure threshold. It is indicated for moderate to moderately severe chronic pain.

Side effects from opioid therapy include nausea and vomiting, sedation followed by respiratory depression, itching, urinary retention, confusion and constipation. Anticipate and prevent the side effects of opioid therapy whenever possible. With the exception of constipation, when opioids are administered on a schedule, most people become rapidly tolerant to the other side effects of therapy within a few days. A prophylactic bowel management program should be in place for all people on opioid therapy. The plan should include the usual interventions for preventing constipation like exercise, increased fluids and increased fiber, and a comfortable and private place to toilet. Most people also require a stool softener and stimulant to counteract the action of opioids on the gut. This action slows peristalsis, thereby decreasing gut motility and increasing the absorption of water from the stool resulting in a hard, dry, difficult to pass stool. A prophylactic bowel management program is essential. Increase the aggressiveness of the bowel management program as opioid doses are increased and monitor bowel function routinely.

Table 3 lists commonly used opioids and lists approximate doses comparing each medication to one another and comparing equivalent doses for the oral and parenteral routes. This chart is commonly called an equianalgesic chart.

Table 3. *Opioid Equianalgesic Chart

Opioid	Parenteral Route	Oral Route	Comments
Morphine	10 mg	30 mg	
Hydromorphone	1.5 mg	7.5 mg	
Oxycodone	N/A	20 mg	
Fentanyl	0.1 mg (100 µg)	N/A	25 µg patch is approximately equal to 50 mg of oral morphine q 24h – titrate carefully. Do not cut or alter the patch
Oxymorphone	1 mg	10 mg	Manufacturer recommends to start at 50% of the calculated conversion dose when changing to oxymorphone from another opioid
Methadone	5 mg	10 mg	Long and unpredictable half-life (24-36h or more). Accumulates with repeated dosing, especially days 2-5. Tricky conversion - Use only 10% of this conversion when converting high doses & titrate to effect – carefully monitor
***Combination Opioid Drugs (have maximum daily dose due to nonopioid)**			
Hydrocodone + ASA, acetaminophen or ibuprofen (Vicodin, Lortab, Vicoprofen)	N/A	30mg	5, 7.5, or 10mg hydrocodone with acetaminophen, ASA or ibuprofen. There is a dose limit /day on ALL nonopioid analgesics
Oxycodone + Acetaminophen, ASA (Percocet, Tylox, Percodan)	N/A	20mg	2.5, 5, 7.5, 10 mg oxycodone with 325, 500 or 650 mg acetaminophen (4Gm ceiling/day for acetaminophen)
***Equianalgesic doses are approximate. Individual patient response must be observed. Doses and intervals are titrated according to patient's response.**			
Source: APS (2003); Adapted from Massachusetts Pain Initiative (2008), used with permission			

Titration of Opioids – Finding the Dose That Works

Opioids must be titrated to individual response which is wide and variable. Begin with an initial "starting dose" if the person is not currently taking opioid analgesics and titrate upward to relief. If

a person is currently taking opioid analgesics, provide the person with his/her current dose of analgesic and titrate upward for increasing pain. Starting with a lower dose will not relieve the pain. Titrate upward or downward depending on individual response. If the source of pain is removed or goes away (as with healing), titrate downward. If pain persists, titrate upward while monitoring for side effects. To account for changes in absorption, distribution, metabolism, and excretion in the elderly, start doses a little lower (by 25-50%) than for younger people and titrate upward a little slower, while monitoring responses (APS, 2003). Treat side effects aggressively.

Titration skills

- If a person is already taking an opioid and:
  - Pain remains mild to moderate, increase the dose by 25 to 50% based on assessment and response (for opioid naïve, 10-20%) (APS, 2003).
  - Pain remains moderately severe to severe, increase the dose by 50-100% based on assessment and response.
- When using controlled release oral opioids (e.g., MS Contin, Avinza, Kadian, OramorphSR, OxyContin, Opana CR):
  - Use the percentages indicated above to increase the controlled release dose.
  - Add up the total number of milligrams of controlled release medication currently dosed in 24 hours.
  - Calculate 10-15% of the 24 hour controlled release dose.
  - Use this amount of the same medication, whenever possible, in immediate release form as medication for breakthrough pain, dosed every 1-2 hours prn to treat pain that occurs between controlled release doses.
  - If the person is taking more than 2-3 doses of medication for breakthrough pain each day for other than incident pain (e.g., dressing change, physical therapy, etc.), increase the controlled release medication based on the total amount of controlled release and immediate release medications required per 24 hours for effective relief. Administer the new dose of controlled release medication as appropriate for the specific medication (e.g., q8h, q12h or q24h). Recalculate the breakthrough pain medication as above.

<u>Routes of Administration</u>

The oral route is the preferred route of administration for systemic therapy of analgesics as long as the gut works, the person can swallow and the person is conscious. Medication is absorbed in the GI tract, transported to the liver for partial metabolism and excretion and the remaining medication is sent via the systemic circulation to the central nervous system where it attaches to opioid receptors to relieve pain. This process of partial metabolism in the liver is called the "first pass effect". Because of this activity, the oral dose of a medication will always need to be higher than the equivalent parenteral dose of the same medication (the exception is ketorolac [Toradol]). For example, approximately 2/3 of oral morphine is metabolized and excreted from the liver before it is able to relieve pain. Only one third of the oral dose actually arrives in the general circulation and the CNS to relieve pain. In order to account for this partial metabolism in the liver, a dose adjustment must be made. Therefore, if 10 milligrams of parenteral morphine (IV or SC) effectively relieves pain, the person will require approximately 2/3 more, or 30 milligrams of oral morphine to relieve the same amount of pain. Once the first pass effect occurs and approximately 2/3 of the medication is metabolized and excreted, the person will receive approximately 10 milligrams of morphine. This is an often overlooked concept in dosing that creates needless suffering.

Other routes of administration include, intravenous, patient-controlled analgesia (PCA), subcutaneous, intrathecal/epidural, patient-controlled epidural analgesia (PCEA), transdermal, transmucosal, topical, sublingual, intranasal, intra-articular, rectal, intrastomal, vaginal and others. **Intramuscular injections should be avoided whenever possible**. Absorption is variable and

unpredictable, even when administered by the same person (McCaffery et al., 1999) and IM injections cause unnecessary pain.

Patient-Controlled Analgesia

The goal of intravenous or subcutaneous patient-controlled analgesia (PCA) is to provide a steady serum level of analgesic by allowing the patient to self-dose small pre-programmed doses of medication (push the button) just when pain begins. A safety lock-out prevents doses from being administered more often than prescribed. Subcutaneous and intravenous infusions provide similar blood levels at steady state, but the volume of drug is limited for subcutaneous infusions. If the patient has intravenous access, use it to treat pain. PCA allows considerable patient control over pain relief with minimal delay between the need for medication and dose delivery.

Table 4. Guidelines for Patient-Controlled Intravenous Opioid Administration for Adults with Acute Pain

*Drug	Usual start dose after loading	Usual dose range	Usual starting lock-out (minutes)	Usual lockout range (minutes)
Morphine (1.0mg/mL)	1.0 mg	0.5-2.5mg	8	5-10
Hydromorphone (0.2mg/mL)	0.2mg	0.05-0.4 mg	8	5-10
Fentanyl (50 mcg/mL)	10 mcg	10-50 mcg	6	5-8
*Standard concentrations for most PCA machines are listed in parentheses.				
Source: APS (2003)				

Patient Controlled Epidural Analgesia (PCEA)

The goal of intraspinal analgesia is to provide effective pain relief with acceptable/minimal side effects without causing sensory-motor deficits (analgesics are sometimes mixed with low dose local anesthetics for pain treatment – bupivacaine or ropivacaine are commonly used). Medication may be delivered by bolus injection, constant infusion or patient controlled analgesia. Spinal analgesia is delivered by placing a catheter in either the intrathecal (subarachnoid) or epidural spaces. Intrathecal catheters are placed directly into the cerebrospinal fluid (CSF) and medication is dosed directly into the CSF. Epidural catheters are placed in a "potential" space just outside of the dura and medication diffuses through the dura into the CSF. Dose requirements are very different, depending on where the catheter is placed. Equivalent doses of medication placed into the intrathecal space are smaller than doses placed in the epidural space. For example, for morphine, equivalent doses are: 30 mg orally; 10 mg I.V.; 1 mg epidurally; and 0.1 mg (100 mcg) intrathecally. Preservative-free morphine, fentanyl and hydromorphone are frequently used for intraspinal analgesia with or without local anesthetic. Intraspinal clonidine may be used to treat some types of neuropathic pain caused by cancer. Medications must be preservative free for intraspinal placement, and catheters and infusion pumps should be clearly marked as epidural or intrathecal.

Patient controlled epidural analgesia is used for a variety of surgical procedures, in cancer pain management when other methods are unsuccessful, and for other painful conditions. Opioids delivered epidurally diffuse through the dura and attach directly to opioid receptors in the spinal cord to provide pain relief at doses lower than therapy via other systemic routes.

Cautions:

- Intraspinal Infusions MUST be preservative-free.
- Free-flowing CSF should be found ONLY in intrathecally-placed catheters. Epidural catheters should NOT have free-flowing CSF.

- Doses must be adjusted for age, injection site, and individual response.
- Policies must be in place describing the roles of all healthcare providers in epidural analgesia.
- Catheters and infusion pumps must be well marked to clearly differentiate spinal catheters from other catheters and tubes.
- Education of staff and patients is vital.

Table 5. Epidural Analgesic Dosing Guidelines for Acute Pain in Adults				
Drug	Single dose (mg)	Infusion rate (mg/hour)	Onset (minutes)	Duration of single dose (hrs)
Morphine	1.0-6.0	0.10-1.0	30	6-24
Fentanyl	0.025-0.100	0.25-0.100	5	4-8
Hydromorphone	0.8-1.5	0.15-0.3	5-8	4-6
Source: Adapted from APS (2003)				

Other routes and therapies to consider in pain management include:

- Transmucosal
  - Actiq, Fentora and the Fentanyl Oralet are analgesics approved by the FDA for transmucosal use. The Actiq lozenge is indicated for breakthrough pain in people with cancer who are opioid tolerant and is used in an active swabbing motion on the oral mucosa over 15 minutes OR pain relief, whichever comes first. Onset of action occurs rapidly, usually within 5 minutes. Action is similar in onset to an intravenous injection. Actiq® has unique titration instructions that are different than titration of most opioids – see package insert. The Oralet is used pre-operatively as part of balanced analgesia or for procedures. Fentora ®is an effervescent tablet that dissolves within 14-25 minutes when placed above a rear molar between the upper gum and cheek. Fentora® is indicated for breakthrough pain in adults with cancer who are using other around-the-clock opioids.

- Intraarticular infusions
  - A catheter is inserted into a surgical wound (e.g., shoulder joint) and the area is bathed with an analgesic or anesthetic (or both) and infused continuously or by PCA using an infusion pump. A variety of pumps are available.

- Transdermal
  - A patch containing medication is applied to the skin of the patient for transdermal absorption. Two analgesics are currently commercially available as transdermal skin patches – fentanyl and lidocaine.

  - The fentanyl patch (Duragesic® and generics) is indicated for "moderate to severe chronic pain in patients who require continuous opioid analgesia that cannot be managed by others means. Duragesic should not be used in the management of acute or post-operative pain, mild pain, or intermittent pain" (Ortho-McNeil-Janssen Pharmaceuticals, 2008). The patch must adhere to unbroken skin, must not be altered or cut in any way, and takes 8-12 hours for onset when applied. Duration of action is 48-72 hours for most people. Heat will increase absorption of medication from the patch.

  - The 5% lidocaine patch (Lidoderm®) is indicated for the treatment of pain due to post-herpetic neuralgia and has been used off-label for a variety of neuropathic and other pain problems. It must be applied to intact skin and is worn for 12 hours on and 12 hours off each day. Patches may be cut to the size of the

affected area. There is little to no systemic absorption of lidocaine (Endo Pharmaceuticals, 2008) as long as it is applied to intact skin.

Co-analgesics (Adjuvant Medications)

Co-analgesics are medications developed for indications other than pain that have been shown to treat certain types of pain, especially neuropathic pain. These medications may be used alone or in conjunction with nonopioids and opioids. As with other pain medications, response is variable and titration is key. For most co-analgesics, a trial may take one to two weeks to determine efficacy. Assessment and reassessment are important in order to determine if the individual has achieved partial relief, complete relief or no relief from the medication. Patients frequently require more than one medication in combination for effective relief.

Anticonvulsants

Anticonvulsants are used to manage some types of neuropathic pain and, like other medications, must be titrated to comfort and acceptable side effects. Gabapentin (Neurontin®) and pregabalin (Lyrica®) are the best studied and, generally, the best tolerated. Gabapentin is FDA approved for post-herpetic neuralgia and is also used for many different types of neuropathic pain. Pregablin is FDA approved for diabetic neuropathy, post-herpetic neuralgia and fibromyalgia and has a quicker onset of action for pain relief than others. Like Gabapentin, Pregabalin is also used for many other types of neuropathic pain. Other anticonvulsants with greater side effect profiles include the following: carbamazepine (Tegretol), clonazepam (Klonopin), topiramate (Topamax), sodium valproate (Depacon), tiagabine (Gabitril), phenytoin (Dilantin), lamotrigine (Lamictal), and zonisaminde (Zonegran). Individual responses to these medications are unpredictable and variable and upward titration is usually required. It is important to teach patients that they are taking these medications for pain rather than for seizures.

Antidepressants

Tricyclic antidepressants are effective for some types of neuropathic pain such as diabetic neuropathy and post-herpetic neuralgia (Sindrup, Otto, Finnerup, & Jensen, 2005). While amytriptyline (Elavil®) is the most well-studied, it also has the least-well tolerated side effects of dry mouth, urinary retention, constipation and delirium. Desipramine (norpramine) has the best pharmacokinetic and side effect profile of all the tricyclic antidepressants (Lipman, 1996) and is a good place to start. Teach patients that they are taking these medications for pain rather than depression.

Local Anesthetics

Local anesthetics like oral mexiletine (Mexitil®) or intravenous lidocaine are sometimes used by pain specialists to treat neuropathic pain that has not responded to other medications. Patients must be carefully monitored and the healthcare provider must have expertise in using these medications.

The Lidoderm patch is described in the previous section on transdermal medications.

Local anesthetics are also used to decrease pain from superficial procedures. A topical eutectic mixture of lidocaine and prilocaine (EMLA cream) and a topical 4% lidocaine cream (ELA-MAX) are used to decrease pain from needle insertions for intravenous therapy and other similar superficial procedures.

Glucocorticoids

Glucocorticoids reduce pain by decreasing edema, swelling, and capsular distention, and by reducing pressure caused by spinal and nerve root compression. They may also decrease pain caused by bone metastases when other interventions are unsuccessful. Doses vary. Side effects include weight gain, osteoporosis, Cushing's syndrome, proximal myopathy, psychosis, and an increased risk of GI bleeding. Glucocorticoids and NSAIDs should not be used together because they increase the risk of life-threatening GI bleeding five-fold (APS, 2003).

Commonly used glucocorticoids include:

- Dexamethasone (Decadron)
- Prednisone (Orasone, Meticorten, Deltasone)
- Methylprednisolone (Medrol)

Equivalent dosages of the corticosteroids are dexamethasone 2 mg = prednisone 10 mg = methylprednisolone = 8mg (McCaffery et al., 1999).

Muscle Relaxants

Muscle relaxants are not analgesics. They may be useful in conjunction with analgesics for pain caused by muscle tension or muscle spasm or acute muscle injury (APS, 2003). Sedative side effects of the muscle relaxants should be considered when incorporating muscle relaxants into the pain management treatment plan.

Sedatives

Sedatives sedate and are not analgesics. A sedated person still experiences pain. Sedatives may be used in conjunction with analgesics during procedures for example, but should never be used alone as pain relievers.

Placebos

The use of placebos to assess or manage pain, in the absence of written informed consent, is unethical. Placebos should not be used to assess or manage pain in any individuals, regardless of age or diagnosis without such consent (American Medical Association, 2001; ANA, 2001; ASPMN, 2004; Oncology Nursing Society, 1996).

Analgesics Not Recommended for Pain Management

Although still often used, codeine, propoxyphene containing analgesics like Darvon and Darvocet and meperidine (Demerol) are among the least recommended medications for pain. Codeine may cause more nausea and constipation per unit of analgesia than other opioids like morphine, oxycodone and others. In addition, approximately 10% of people in the U.S. lack the enzyme needed to activate codeine (APS, 2003). Codeine will have no effect in these individuals. Propoxyphene containing medications are approximately equivalent to 2 regular strength aspirin or acetaminophen, are not strong pain relievers, and will biotransform into norpropoxyphene, a potentially toxic metabolite (McCaffery et al., 1999). In addition, the American Geriatrics Society does not recommend these medications for older persons (AGS, 2002).

Meperidine (Demerol) also biotransforms to normeperidine, a toxic metabolite that causes central nervous system excitation and may precipitate seizures. Meperidine hydrochloride is also not recommended for patients with circulatory impairment, renal/hepatic failure, respiratory abnormalities or acute abdominal conditions. In addition, frequent IM injections may cause fibrosis of muscle tissue (meperidine hydrochloride should not be administered subcutaneously). Meperidine is contraindicated for all persistent pain and is not recommended for other types of pain (APS, 2003).

Agonists/antagonists are also not recommended for persistent pain. Medications like nalbuphine (Nubain), pentazocine (Talwin), dezocine (Dalgan) and butorphanl (Stadol), when given alone, act as analgesics and are sometimes used for acute nociceptive pain of moderate to severe intensity. However, they are inappropriate for severe escalating pain and cause distressing psychotomimetic side effects like dysphoria, agitation and confusion. When given in the presence of other opioids, they may precipitate withdrawal symptoms and cause unrelieved pain (McCaffery et al., 1999). However, some of these medications are used effectively in the prophylaxis and treatment of migraine headaches.

A Word about Addiction, Physical Dependence and Tolerance to Opioids

Concerns about addiction prevent physicians and nurse practitioners from prescribing opioids, nurses from administering them, and patients and families from taking them properly. Textbooks often confuse the differences between addiction, physical dependence and tolerance – these terms are NOT interchangeable. In an effort to clarify these definitions and promote the appropriate use of opioids for pain management, the American Academy of Pain Medicine, the American Pain Society and American Society of Addiction Medicine published a consensus statement defining the terms (Savage, Covington, Heit, Hunt, Joranson, & Schnoll, 2001).

> **Addiction** is a primary, chronic, neurobiologic 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
> - Craving
>
> 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. This is a normal, expected response to opioid therapy.
>
> **Tolerance** is a state of adaptation in which exposure to a drug induces changes that result in a diminution of one or more of the drug's effects over time.
>
> Excerpts from discussion section of this document
>
> "Most specialist in pain medicine and addiction agree that patients treated with prolonged opioid therapy usually do develop physical dependence and sometimes develop tolerance, but do not usually develop addictive disorders…Addiction, unlike tolerance and physical dependence, is not a predictable drug effect, but represents an idiosyncratic reaction in biologically and psychosocially vulnerable individuals…Addiction is a primary chronic disease and exposure to drugs is only one of the etiologic factors in its development."
>
> "…Addiction is recognized by observation of one or more of its characteristic features: Impaired control, craving and compulsive use, and continued use despite negative physical, mental, and/or social consequences. An individual's behaviors that may suggest addiction sometimes are simply a reflection of unrelieved pain or other problems unrelated to addiction."
>
> "Pseudoaddiction is a term which has been used to describe patient behaviors that may occur when pain is undertreated. Patients with unrelieved pain may become focused on obtaining medications, may "clock watch", and may otherwise seem inappropriately "drug seeking." Even such behaviors as illicit drug use and deception can occur in the patient's efforts to obtain relief. Pseudoaddiction can be distinguished from true addiction in that the behaviors resolve when pain is effectively treated" (Savage et al., 2001).

Physical dependence is an expected effect of opioid therapy and is not, in and of itself, addiction. Abruptly stopping an opioid will cause withdrawal symptoms. To prevent withdrawal, taper the dose of an opioid before discontinuing. Tolerance is not usually clinically relevant for most people. Contrary to popular belief, when opioids are prescribed for pain management, addiction is rare in individuals who do not have a prior history of substance use disorder. If addiction is suspected,

further assessment should be completed and consultation with an addiction disorders specialist is indicated. Making a diagnosis or judgment about a person's potential addiction requires a plan to address it and manage it while providing effective pain management.

Acute Pain Management

Unrelieved acute pain causes adverse physiologic effects that are sympathetically mediated and can have negative consequences on the cardiovascular, pulmonary, endocrine, and other body systems. Pain impedes mobility, aeration and overall recovery. Preventing acute pain can also increase activity levels after discharge and decrease disability and death (American Society of PeriAnesthesia Nurses [ASPAN], 2007; St. Marie, 2002).

The incidence of moderate-to-severe postoperative pain is estimated between 25 and 50% (ASPAN, 2007). In surgical patients, pain management should begin preoperatively, continue intra-operatively and continue through rehabilitation and recovery. A multi-modal approach is most effective for acute pain, including post-operative pain. Unless contraindicated, use a nonopioid, such as a NSAID or acetaminophen, with or without an opioid, pre-operatively to prevent pain and provide balanced analgesia (APS, 2003). The risk of bleeding due to inhibition of platelet aggregation from NSAIDs can be minimized by using a COX-2 inhibiting NSAIDs or choline magnesium trisalisylate (Trilisate®) (see Table 1). Regional anesthesia (e.g., epidural analgesia or regional nerve block) intra-operatively is an important part of the plan. Postoperatively, the combination of PCA and NSAID therapy has been shown to lower the use of PCA by 30% and improve surgical outcome (Winzeler & Rosenstein, 1998). Scheduled medications rather than PRN medications provide steady serum levels of analgesia to promote comfort. Non-drug interventions like relaxation and imagery and other strategies further improve the plan.

Pain Management at the End of Life

Whether positive or negative, the experience of dying and death remains in the hearts and minds of those who live on. Effective pain management is an important part of the experience. Specific patient-directed goals guide care at the end of life. Determine what is important to the person and their family, and plan according to the patient's wishes. A multidisciplinary, comprehensive approach to care usually works best. The same principles for assessing and managing any type of pain also guide pain management at the end of life.

Many people fear pain more than death itself. It is imperative to identify and treat pain aggressively. As death approaches, it is not unusual to lose the oral route. Equianalgesic conversions from one route to another or one drug to another are important in order to keep pain under control. Dose increases, sometimes significant and frequent ones, are common as the process causing death accelerates. Keep in mind that there is no limit on the amount of opioids that can be given. The right dose is the dose that provides effective pain relief with the fewest side effects.

Help families understand the natural slowing-down process of dying and assure them that pain and symptom management will be vigilant up until the moment of death. Incorporate non-drug interventions and comfort measures into the plan as well. Fear of hastening death by administering medications is a common issue for healthcare providers. Recent studies and years of clinical experience demonstrate that effective pain management at the end of life does NOT hasten death (Portenoy et al., 2006).

Non-Pharmacological Interventions for Pain Relief

Pain is multidimensional affecting the person in a variety of ways – physiologically, affectively, cognitively, behaviorally, socio-culturally and spiritually. Non-drug interventions and therapies address many aspects of an individual's response to pain and are part of a multi-modal approach to pain management for all types of pain.

Physical therapy (including application of cold, heat and massage) and occupational therapy have long been a part of pain management plans. Other therapies like relaxation and imagery, distraction, meditation, and other strategies can be effective alone for mild pain and with medications for more severe pain. These strategies are increasingly being incorporated as part of integrative medicine programs in healthcare facilities. Results of studies looking at the effectiveness of a variety of non-drug interventions are mixed. The National Institutes for Health (NIH) published a consensus statement in 1995 which concluded that "a number of well-defined behavioral and relaxation interventions now exist and are effective in the treatment of chronic pain and insomnia." They also concluded there is strong evidence supporting hypnosis to treat pain and moderate evidence for biofeedback and cognitive-behavioral techniques. A similar NIH report in 1997 concluded that "promising results have emerged…showing the efficacy of acupuncture in adult post-operative and chemotherapy nausea and vomiting and adult post-operative dental pain." The report also identifies a variety of other clinical situations in which acupuncture may be used as an adjuvant treatment or acceptable alternative therapy. The National Center for Complimentary and Alternative Medicine at the National Institutes of Health provides extensive information about alternative and complementary health practices. More information can be found at http://nccam.nih.gov/.

Some common non-drug interventions are:

- Distraction
- Muscle relaxation with or without imagery
- Hypnosis
- Trans-cutaneous electrical nerve stimulation (TENs)
- Therapeutic touch
- Meditation
- Yoga, Tai Chi, Qi Qong
- Reiki
- Music, art or pet therapy
- Heat
- Cold
- Massage
- Acupuncture
- Acupressure
- Chiropractic manipulation
- Herbal therapy
- Humor

There are many advantages to non-drug interventions. Many are convenient, easy to use, portable, self-controlled, with few side effects. Some are low cost. Improved outcomes include better sleep, improved pain control, better coping skills, and improved function. Selecting an appropriate non-drug intervention is based on the individual's assessment, unique needs and willingness to use non-drug strategies. Disadvantages include others' misperceptions that pain is not real if it can be relieved with non-drug interventions. These strategies also take time and concentration. Some are not covered by health insurance. If pain is severe, concentrating enough to perform the intervention is very difficult.

Key Points

- Non-pharmacologic interventions are never a substitute for appropriate medications. They may be used alone for mild to moderate pain or in conjunction with analgesics for mild, moderate or severe pain. Introduce them as early as possible.
- A therapeutic provider-patient relationship improves the success of non-drug interventions.
- Non-pharmacologic interventions increase patient's sense of self control.
- Careful patient assessment is critical.
- Non-pharmacologic interventions require uninterrupted time, practice, and energy.
- More than one may be used at one time.
- Must be tailored to individual needs and resources.

Conclusion

Pain management is a basic right of all individuals in all healthcare settings (JCAHO, 2003). Healthcare providers have a legal and ethical responsibility to obtain the knowledge and skills necessary to practice according to current published standards and guidelines for all types of pain. Screening, assessment based on self-report whenever possible, timely, appropriate interventions, along with a schedule for re-assessment are responsibilities of everyone working with people with pain. Practice changes take time and patience, yet organizations must provide the resources and direction for attentive pain care. It's simply the right thing to do.

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APPENDIX A

Standards, Guidelines and Resources for Managing Pain

- **Agency for Health Care Policy and Research (now Agency for Health Research & Quality –AHRQ). U.S. Department of Health and Human Services** www.ahrq.gov
  Acute Pain Management: Operative or Medical Procedures and Trauma, 1992. Call: 1-800—358-9295; AHCPR Clearinghouse P.O. Box 8547, Silver Spring, MD 20907

- **American Alliance of Cancer Pain Initiatives** **www.aspi.wisc.edu** Many resources, including book, *Making an Institutional Commitment to Pain Management*; DVD designed for certified nursing assistants on Identifying Pain in Persons with Dementia; information regarding regulatory barriers and other educational resources. 608-262-0978. Address: 1300 University Ave. Room 53706, Madison, WI 53706

- **American Academy of Family Physicians**
  Treatment of Nonmalignant Chronic Pain. *Amer.Family Physician* 2000, 61:1331-8, 1345-6.

- **American Academy of Pain Medicine** www.painmed.org
  Co-published, with the American Pain Society, & American Society of Addiction Medicine. Definitions Related to the Use of Opioids for the Treatment of Pain: A Consensus Statement., 2000, and other pain-related resources

- **American Geriatrics Society** www.americangeriatrics.org
  AGS Panel on Persistent Pain in Older Persons. (2002). Clinical Practice Guideline: The Management of Persistent Pain in Older Persons. *Journal of the American Geriatrics Society,* 50: S205-224.

- **American Medical Directors Association** www.amda.com
  Chronic Pain Management in the Long Term Care Setting: Clinical Practice Guideline. AMDA, 1999. Call 800-876-2632 or 410-740-9743

- **American Pain Society** www.ampainsoc.org
  Publish evidence-based guidelines for acute, chronic non-cancer pain, cancer pain, arthritis pain, sickle cell disease-related pain, and fibromyalgia. Consensus statements with AAPM, ASAM: definitions related to addiction, dependence and tolerance. Quality Improvement Standards published in JAMA, December 20, 1995 and other current resources

- **American Society of Addiction Medicine** www.asam.org
  Co-author: Definitions of addiction, dependence, tolerance: Use of opioids in the management of pain

- **American Society of Anesthesiologists** www.asahq.org
  Acute and Cancer Pain Guidelines published in Anesthesiology, 84: 1996: Chronic pain management, in Anesthesiology 86:995-1004, 1997.

- **American Society of Clinical Oncology** www.asco.org
  Curriculum for pain competency published in J. Clinical Oncology 10:12, December, 1995

- **American Society of Pain Management Nursing** **www.aspmn.org**
  CorevCurriculum for Pain Management Nursing; Standards for Clinical Nursing Practice for Pain Management Nursing; Standards for the Specialty of Pain Management; Statements on Placebos, End of Life Care and others. ASPMN, 18000 W. 105th Ave. Olathe, KS 66061

- **City of Hope Medical Center Pain Resource Center** www.cityofhope.org/prc
  Resource for many types of information, rating scales, tools documentation and publications regarding pain

- **Federation of State Medical Boards of the United States** www.FSMB.org
  Model Guidelines for the Use of Controlled Substances for the Treatment of Pain., 2004. Federation Pl. 400 Fuller Wise Rd., Suite 300, Euless, TX 76039-3855. Phone: 817-868-4000

- **Joint Commission (formerly the Joint Commission on Accreditation of Health Care Organizations (JCAHO) www.jointcommission.org**
  Standards for managing pain in acute, ambulatory, home, long term and systems-wide care. Available at website or directly by mail or phone from the Joint Commission. JCAHO Complaint Hotline for Patients and Families: 800-994-6610. Also: Improving the Quality of Pain Management Through Measurement and Action. 2003 JCAHO and National Pharmaceutical Council.

- **Oncology Nursing Society www.ons.org**
  Position Paper on Cancer Pain Management, Position on Use of Placebos: 125 Enterprise Dr. Pittsburgh, PA 15275-1214. phone: 866.257.4ONS

- **World Health Organization:** WHO Publications Center USA, 49 Sheridan Ave. Albany, NY 12210 Published guidelines on pain and end of life care

Pain Assessment and Management: An Oregon Nurse's Responsibility
Course Exam

After studying the downloaded course and completing the course exam, you need to enter your answers online. **Answers cannot be graded from this downloadable version of the course.** To enter your answers online, go to e-leaRN's Web site, www.elearnonline.net and click on the Login/My Account button. As a returning student, login using the username and password you created, click on the "Go to Course" link, and proceed to the course exam.

1. Some of the causes of poor pain management include all of the following EXCEPT:

    A. Lack of knowledge by clinicians and the public.
    B. Confusion and misinformation between appropriate use and misuse/abuse of pain medications.
    C. Concern about JCAHO accreditation issues.
    D. Lack of priority for pain relief in the health care system, including a lack of reimbursement for effective pain management.

2. The consequences of poor pain management include:

    A. Negative impact on the quality of life.
    B. Sleep deprivation.
    C. Anxiety.
    D. All of the above.

3. The primary purpose of screening for pain is to:

    A. Complete the medical record for JCAHO accreditation.
    B. Identify patients with pain and evaluate progress toward relieving pain.
    C. Document pain and pain relief.
    D. Make pain a vital sign.

4. Which is the best scale to use for screening for and assessing pain?

    A. The Wong-Baker FACES Pain Rating Scale.
    B. The Verbal Pain Rating Scale.
    C. The Pain Scale for Mentally Challenged, Dementia & Alzheimer's Patients.
    D. Any scale that the individual can use to accurately report pain.

5. Health care organizations need to commit to a system-wide effort to manage pain appropriately. Some of the interventions identified in this course include all the following EXCEPT:

    A. Form an interdisciplinary work group which examines and re-examines pain management issues and practices with the goal of continuous improvement.
    B. Utilize written standards for assessment and documentation of pain.
    C. Limiting educational opportunities for clinicians and patients.
    D. Create explicit policies and procedures to identify accountability for pain management as well as to guide prescribing and the use of specialized techniques for analgesic administration.

6. The assessment of pain must include identification of the patient's goals for pain management, the patient's culture and ethnic background.

    A. True
    B. False

7. Pain that is caused by compression of nerves, dysfunction or a primary lesion in the nervous system, which may result in nerve damage or abnormal processing of the nerve impulse is called:

    A. Nociceptive pain.
    B. Neuropathic pain.
    C. Analgesic pain.
    D. None of the above.

8. Visceral pain arises from obstruction to or pressure on visceral organs such as the gastrointestinal tract, liver, pancreas and other hollow organs. All the following is true about visceral pain EXCEPT:

    A. Visceral pain from an obstruction often presents as poorly localized.
    B. Visceral pain from distention of an organ capsule can be more localized.
    C. Visceral pain may radiate to other parts of the body.
    D. Visceral pain involves results from abnormal processing of sensory input.

9. Even when the source of pain is the same among various people, the experience of pain is unique to each person. Some of the factors that influence this uniqueness are:

    A. Physiological, psychological and cultural differences among people.
    B. Physiological, organizational and psychiatric influences among people.
    C. Physiological, psychological and cognitive differences among people.
    D. None of the above.

10. When assessing pain, the clinician should ask about onset, location, quality, severity, intensity, duration, precipitating factors, relieving factors, type of pain, if possible and pain rating on a pain scale.

    A. True.
    B. False.

11. The World Health Organization Three-Step Analgesic Ladder identifies the use of medication (nonopioid and opioid), co-analgesics (adjuvant medications) and nonpharmacologic interventions for the treatment of mild, moderate and severe pain.

    A. True
    B. False

12. Meperidine hydrocholoride:

    A. Is not recommended for patients with pain.
    B. Can cause central nervous system excitation and seizures.
    C. Can cause tissue fibrosis at the site of injection.
    D. All of the above.

13. When switching from an IV dosage of morphine sulfate of 10mg, the approximate equivalent oral dosage is

    A. 300 mg.
    B. 30 mg.
    C. 75 mg.
    D. 10 mg.

14. Adjuvant medications that are used for some types of pain management include all of the following **EXCEPT:**

    A. Antihypertensives.
    B. Corticosteroids.
    C. Tricyclic Antidepressants.
    D. Anticonvulsants.

15. Advantages of non-pharmacological pain management interventions like heat, cold, relaxation and imagery include all of the following **EXCEPT:**

    A. Many are inexpensive.
    B. They help to increase a sense of self-control over pain.
    C. They must be used only under the close supervision of a healthcare provider.
    D. Many are easily portable.