

# Assessment and Management of Pain in the End of Life

## HOW TO RECEIVE CREDIT

- Read the enclosed course.
- Complete the questions at the end of the course.
- Return your completed Evaluation to CME Resource by mail or fax, or complete online at [www.NetCE.com](http://www.NetCE.com). (If you are a physician, behavioral health professional, or Florida nurse, please return the included Answer Sheet.) Your postmark or facsimile date will be used as your completion date.
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### Faculty

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### Faculty Disclosure

Contributing faculty, Lori L. Alexander, MTPW, ELS, has disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

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### Division Planners Disclosure

The division planners have disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

### Audience

This course is designed for physicians, physician assistants, nurses, social workers, and other members seeking to enhance their knowledge of pain management.

### Accreditation

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Social workers will receive 2 Clinical continuing education clock hours in participating in this intermediate to advanced course.

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This course meets the qualifications for 2 hours of continuing education credit for MFTs and/or LCSWs as required by the California Board of Behavioral Sciences.

This course meets the requirements for 2 Clinical hours as required by the New Jersey Board of Social Work Examiners.

This course meets the requirements for 2 Ethics hours as required by the New Jersey Board of Social Work Examiners.

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### **Special Approvals**

This activity is designed to comply with the requirements of California Assembly Bill 1195, Cultural and Linguistic Competency.

This course fulfills the West Virginia requirement for 2 hours of continuing education in end-of-life care and pain management.

This course fulfills the Michigan requirement for 1 hour of continuing education in pain and pain symptom management.

### **About the Sponsor**

The purpose of CME Resource is to provide challenging curricula to assist healthcare professionals to raise their levels of expertise while fulfilling their continuing education requirements, thereby improving the quality of healthcare.

Our contributing faculty members have taken care to ensure that the information and recommendations are accurate and compatible with the standards generally accepted at the time of publication. The publisher disclaims any liability, loss or damage incurred as a consequence, directly or indirectly, of the use and application of any of the contents. Participants are cautioned about the potential risk of using limited knowledge when integrating new techniques into practice.

### **Disclosure Statement**

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### **Course Objective**

The prevalence of pain at the end of life varies, with ranges of 8% to 96% being reported. Because pain is frequently encountered in the palliative and hospice care environments, a knowledge of appropriate diagnosis and alleviation is vital to all members of the interdisciplinary team. The purpose of this course is to provide an overview of the assessment and management of pain in the end of life, focusing on the components integral to providing optimum care.

### **Learning Objectives**

Upon completion of this course, you should be able to:

1. Review the etiology of pain at the end of life and issues in effective pain management.
2. Assess pain accurately through use of clinical tools and other strategies, including the use of an interpreter.
3. Select appropriate pharmacologic and/or nonpharmacologic therapies to manage pain in patients during the end-of-life period.



EVIDENCE-BASED  
PRACTICE  
RECOMMENDATION

Sections marked with this symbol include evidence-based practice recommendations. The level of evidence and/or strength of recommendation, as provided by the evidence-based source, are also included so you may determine the validity or relevance of the information. These sections may be used in conjunction with the course material for better application to your daily practice.

## ISSUES IN EFFECTIVE PAIN MANAGEMENT

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The inadequate management of pain is the result of several factors related to both patients and clinicians. Education and open communication are the keys to overcoming these barriers. Every member of the healthcare team should reinforce accurate information about pain management with patients and families. The clinician should initiate conversations about pain management, especially regarding the use of opioids, as few patients will raise the issue themselves or even express their concerns unless they are specifically asked [1].

Encouraging patients to be honest about pain and other symptoms is also vital. Clinicians should ensure that patients understand that pain is multi-dimensional and emphasize the importance of talking to a member of the healthcare team about possible causes of pain, such as emotional or spiritual distress. The healthcare team and patient should explore psychosocial and cultural factors that may affect self-reporting of pain, such as concern about the cost of medication.

Cultural and demographic factors may also contribute to lack of effective pain management. Expression of pain and the use of pain medication differ across cultures. For example, Hispanic and Filipino patients have been shown to be reluctant to report pain because of fear of side effects or addiction [2; 3]. Some studies have shown that black and Hispanic patients in cancer centers were less likely to have effective analgesics prescribed [2; 4]. Even when effective opioids have been prescribed, access may be difficult, as inadequate supplies of opioids are more likely in pharmacies in primarily nonwhite neighborhoods [5]. Communication with patients regarding level of pain is a vital aspect of caring for patients in the end of life. When there is an obvious disconnect in the communication process between the practitioner and patient due to the patient's lack of proficiency in the English language, an interpreter is required.

## ETIOLOGY

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The prevalence of pain at the end of life has been reported to range from 8% to 96%, occurring more frequently among patients with cancer than among adults with other life-limiting diseases [6; 7; 8; 9]. Pain can be caused by a multitude of factors. For patients with cancer, the most common source of pain is the underlying lesion or disease process itself. In addition, pain is frequently exacerbated by other physical symptoms and by psychosocial factors, such as anxiety or depression [10].

## ASSESSMENT

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As the fifth vital sign, pain should be assessed as frequently as the other vital signs and the findings should be well documented, for easy reference by all members of the healthcare team [11]. Pain is a subjective experience, and as such, the patient's self-report of pain is the most reliable indicator. Research has shown that pain is underestimated by healthcare professionals and overestimated by family members [12; 13; 14]. Therefore, it is essential to obtain a pain history directly from the patient, when possible, as a first step toward determining the cause of the pain and selecting appropriate treatment strategies. When the patient is unable to orally communicate, other strategies must be used to determine the characteristics of the pain, as will be discussed.

Questions should be asked to elicit descriptions of the pain characteristics, including its location, distribution, quality, temporal aspect, and intensity. In addition, the patient should be asked about aggravating or alleviating factors. Pain is often felt in more than one area, and physicians should attempt to discern if the pain is focal, multifocal, or generalized. Focal or multifocal pain usually indicates an underlying tissue injury or lesion, whereas generalized pain could be associated with damage to the central nervous system. Pain can also be referred, usually an indicator of visceral pain.

The quality of the pain refers to the sensation experienced by the patient, and it often suggests the pathophysiology of the pain [15]. Pain that is well localized and described as aching, throbbing, sharp, or pressure-like is most likely somatic nociceptive pain. This type of pain is usually related to damage to bones and soft tissues. Diffuse pain that is described as squeezing, cramping, or gnawing is usually visceral nociceptive pain. Pain that is described as burning, tingling, shooting, or shock-like is neuropathic pain, which is generally a result of a lesion affecting the nervous system.

Temporal aspects of pain refer to its onset (acute, chronic, or “breakthrough”). A recent onset characterizes acute pain, and there are accompanying signs of generalized hyperactivity of the sympathetic nervous system (diaphoresis and increased blood pressure and heart rate). Acute pain usually has an identifiable, precipitating cause, and appropriate treatment with analgesic agents will relieve the pain. When acute pain develops over several days with increasing intensity, it is said to be subacute. Episodic, or intermittent, pain occurs during defined periods of time, on a regular or irregular basis [16]. Chronic pain is defined as pain that persists for at least three months beyond the usual course of an acute illness or injury. Such pain is not accompanied by overt pain behaviors (grimacing, moaning) or evidence of sympathetic hyperactivity. “Breakthrough” is the term used to describe transitory exacerbations of severe pain over a baseline of moderate pain [17]. Breakthrough pain can be incident pain or pain that is precipitated by a voluntary act (such as movement or coughing), or can occur without a precipitating event. Often, breakthrough pain is a consequence of inadequate pain management.

Documentation of pain intensity is key, as several treatment decisions depend on the intensity of the pain. For example, severe, intense pain requires urgent relief, which affects the choice of drug and the route of administration [18; 19]. Many assess-

ment tools have been developed, and among the more commonly used tools are the Wisconsin Brief Pain Questionnaire, the Memorial Pain Assessment Card, and the McGill Pain Questionnaire (short form) [20; 21; 22]. Simpler forms of measuring pain include numerical rankings (patients rate pain on a scale of 0 to 10), and visual analogue scales (patients rate pain on a line from 0 to 10). Verbal rating scales, which enable the patient to describe the pain as “mild,” “moderate,” or “severe,” have also been found to be effective. Some patients, however, may have difficulty rating pain using even the simple scales. In an unpublished study involving 11 adults with cancer, the Wong-Baker FACES scale, developed for use in the pediatric setting, was found to be the easiest to use among three pain assessment tools that include faces to assess pain [23].

Functional assessment is important. The health-care team should observe the patient to see how pain limits movements and should ask the patient or family how the pain interferes with normal activities. Determining functional limitations can help enhance patient compliance in reporting pain and adhering to pain-relieving measures, as clinicians can discuss compliance in terms of achieving established functional goals [1].

Physical examination can be valuable in determining an underlying cause of pain. Examination of painful areas can detect evidence of trauma, skin breakdown, or changes in osseous structures. Auscultation can detect abnormal breath or bowel sounds; percussion can detect fluid accumulation; and palpation can reveal tenderness. A neurologic examination should also be carried out to evaluate sensory and/or motor loss and changes in reflexes. During the examination, the clinician should watch closely for nonverbal cues that suggest pain, such as moaning, grimacing, and protective movements. These cues are especially important when examining patients who are unable to verbally communicate about pain.

## MANAGEMENT

There is no evidence to support specific pain management interventions for patients with some life-limiting diseases, such as heart failure or dementia [24]. There is, however, strong evidence to support approaches to treat cancer pain; namely, nonsteroidal anti-inflammatory drugs (NSAIDs), opioids, and radiotherapy [24; 25]. Bisphosphonates have been effective for bone pain [25].



According to the American College of Physicians, clinicians should use specific effective therapies for all palliative care patients with acute and chronic pain. Strong evidence supports using nonsteroidal anti-inflammatory drugs, opioids, and bisphosphonates for pain relief in patients with cancer. Bisphosphonates are effective for bone pain relief in patients with breast cancer and myeloma.

([http://www.guideline.gov/summary/summary.aspx?doc\\_id=12149](http://www.guideline.gov/summary/summary.aspx?doc_id=12149). Last accessed October 21, 2010.)

**Strength of Recommendation:** Strong recommendation based on moderate quality of evidence

The overall objectives of pharmacologic management of pain include [26; 27]:

- Selection of the appropriate drug, dose, route, and interval
- Aggressive titration of the drug dose
- Prevention of pain and relief of breakthrough pain
- Use of appropriate coanalgesic medications
- Prevention and management of side effects

Achieving the first four of these objectives is best done with use of the WHO three-step analgesic ladder, which designates the type of analgesic agent based on the severity of pain (*Table 1*) [28]. Step 1 of the WHO ladder involves the use of nonopioid analgesics, with or without an adjuvant (coanalgesic) agent, for mild pain (pain that is rated 1 to 3 on a 10-point scale). Step 2 treatment, recommended for moderate pain (score of 4 to 6), calls for a low dose of an opioid, which may be used in combination with a step 1 nonopioid analgesic for

unrelieved pain. Step 3 treatment is reserved for severe pain (score of 7 to 10) or pain that persists after Step 2 treatment. Opioids are the optimum choice of drug at Step 3, often in higher doses than at Step 2. At any step, nonopioids and/or adjuvant drugs may be helpful.

Before describing the various nonopioid and opioid analgesic agents, two important principles must be noted. First, treatment according to the WHO analgesic ladder should correspond with the intensity of pain as described by the patient, regardless of whether treatment at a previous step was carried out. For example, if a patient has severe pain when initially assessed, treatment should begin at Step 3, not Step 1. Second, analgesics must be administered on around-the-clock dosing, not on an as-needed basis. Not only is this approach more effective at controlling pain but it also avoids unnecessary pain as a prompt for the next dose.

Nonopioid analgesics include aspirin, acetaminophen, and NSAIDs. They are primarily used for mild pain (Step 1 of the WHO ladder) and may also be helpful as coanalgesics at Steps 2 and 3. Acetaminophen is among the safest of analgesic agents, but it has essentially no anti-inflammatory effect. When given at high doses (4,000 mg per day), the drug can cause liver dysfunction; therefore, it should be avoided or used at lower doses for patients who have renal insufficiency or liver failure [36; 37].

NSAIDs are most effective for pain associated with inflammation. Among the commonly used NSAIDs are ibuprofen, naproxen, and indomethacin. There are several classes of NSAIDs, and the response differs among patients; trials of drugs for an individual patient may be necessary to determine which drug is most effective [9; 15]. NSAIDs inhibit platelet aggregation, increasing the risk of bleeding, and also can damage the mucosal lining of the stomach, leading to gastrointestinal bleeding [38]. There is a ceiling effect to the nonopioid analgesics; that is, there is a dose beyond which there is no further analgesic effect. In addition, many side effects of nonopioids can be severe and may limit their use or dosing.

MANAGEMENT OF PAIN IN ADULTS ACCORDING TO THE WORLD HEALTH ORGANIZATION (WHO) LADDER			
Drug	Typical Starting Dose and Route <sup>a</sup>	Onset of Action	Duration of Action (Hr)
<b>WHO Step 1: Mild pain (score of 1-3 on a 10-point scale)</b>			
Aspirin	650 mg PO	30 min	3-4
Acetaminophen	650 mg PO	15 to 30 min	3-4
NSAIDs			
Ibuprofen	200–800 mg PO	30 min	4-6
Naproxen	250–275 mg PO	60 min	6-12
Indomethacin	25–75 mg PO	30 min to several hrs	4-12
Piroxicam	10–20 mg PO	Several hrs	24
<b>Step 2: Moderate pain (score of 4-6 on a 10-point scale)</b>			
<i>Acetaminophen combinations:</i>			
Plus codeine	60 mg PO	30 min	3-4
Plus oxycodone	5–10 mg PO	Unknown	3-4
Plus hydrocodone	10 mg PO	30 to 60 min	4-6
Codeine	30–60 mg PO 30 mg IV/SC	30 to 45 min	4-6
Hydrocodone	10–30 mg PO	30 to 60 min	4-8
Morphine <sup>b</sup> (immediate release)	5–15 mg PO 2–10 mg/hr IV 4–15 mg SC	30 min 10 to 30 min 10 to 15 min	3-4 3-4 3-4
<b>Step 3: Severe pain (score of ≥7 on a 10-point scale)</b>			
Morphine (sustained release)	15–30 mg PO	60 min	8-12
Oxycodone (immediate release)	5–10 mg PO	10 to 15 min	3-6
Oxycodone (sustained release)	10–20 mg PO	30 min	12
Hydromorphone	2–4 mg PO 0.3–1.5 mg IV	15 to 30 min	4-6 2-4
Methadone	5–10 mg PO 2.5–10 mg IV	30 to 60 min	4-8
Levorphanol	2–4 mg PO	10 to 60 min	6-8
Fentanyl	50–100 mcg IV Transdermal patch (25 mcg/hr)	5 to 10 min 12 to 24 hr	Varies 48-72
<sup>a</sup> Doses given are guidelines for opioid-naïve patients; actual doses should be determined on an individual basis.			
<sup>b</sup> Also used in Step 3.			
NSAIDs = nonsteroidal anti-inflammatory drugs.			
Source: [29; 30; 31; 32; 33; 34; 35]			Table 1

Moderate pain (Step 2) can be treated with analgesic agents that are combinations of acetaminophen and an opioid, such as codeine, oxycodone, or hydrocodone. Strong opioids are used for severe pain (Step 3).

There is no conclusive evidence of the superiority of one opioid over another [39]. Morphine, oxycodone, hydromorphone, and fentanyl are the most widely used opioids in the United States [29]. Morphine is the most commonly used opioid for Step 3, and its efficacy has been established [28; 40].

Morphine is available in both immediate-release and sustained-release forms, and the latter form can enhance patient compliance. The sustained-release tablets should not be cut, crushed, or chewed, as this counteracts the sustained-release properties.

The sustained-release form of oxycodone (Oxy-Contin) has been shown to be as safe and effective as morphine for cancer-related pain, and it may be associated with less common side effects, especially hallucinations and delirium [41; 42]. Oxycodone is also available in an immediate-release form (Roxicodone).

Hydromorphone and fentanyl are the most potent opioids; neither drug should be given to an opioid-naïve patient. Hydromorphone, which is four times as potent as morphine, is available in immediate-release form. An extended-release form of hydromorphone was approved by the FDA in 2004; however, sales and marketing of the drug were suspended by the manufacturer in 2005 because of the potential for severe side effects when taken with alcohol [43]. Fentanyl is the strongest opioid (approximately 80 times the potency of morphine) and is available as a transdermal drug-delivery system (Duragesic) [39; 44]. Because peak delivery does not occur until 12 hours, an alternate analgesic must also be given initially. Transdermal fentanyl is helpful for patients who are unable (or unwilling) to take an oral opioid [26]. Because of its potency, fentanyl must be used with extreme care, as deaths have been associated with its use. Physicians must emphasize to patients and their families the importance of following prescribing information closely, and members of the healthcare team should monitor the use of the drug.

The use of methadone to relieve pain has increased substantially over the past few years, moving from a second-line or third-line drug to a first-line medication for severe pain in patients with life-limiting diseases [45; 46]. Physicians must be well educated about the pharmacologic properties of methadone, as the risk for serious adverse events, including death, is high when the drug is

not administered appropriately [47; 48]. One challenge in using methadone lies in the discrepancy between its duration of effect (four to six hours) and its elimination half-life (range: 15 to 40 hours; average: 24 to 36 hours) [49; 50]. Consequently, if the dose of methadone is increased too rapidly or administered too frequently, toxic accumulation of the drug can cause respiratory depression and death. When using methadone, extreme care must be taken when titrating the drug, and close evaluation of the patient is necessary.

Propoxyphene is an opioid that is chemically similar to methadone. It is not recommended for use because of toxicity even at therapeutic doses and a lack of efficacy compared with placebo or acetaminophen [1; 9; 15; 42]. Similarly, meperidine should not be used in the palliative care setting because of limited efficacy and potential for severe toxicity. Agonist-antagonist opioids (nalbuphine, butorphanol, and pentazocine) are not recommended for use with pure opioids, as they compete with them, leading to possible withdrawal symptoms.

Unlike nonopioids, opioids do not have a ceiling effect, and the dose can be titrated until pain is relieved or side effects become unmanageable. For an opioid-naïve patient or a patient who has been receiving low doses of a weak opioid, the initial dose should be low. Immediate-release morphine, hydromorphone, and oxycodone are the best options [9]. For a patient who has been taking a strong opioid and pain persists, the dose may be titrated up on a daily basis until pain is controlled.

More than one route of opioid administration will be needed by many patients during end-of-life care, but in general, opioids should be given orally, as this route is the most convenient and least expensive. For patients who have difficulty swallowing, the transdermal route is preferred to the parenteral route. Intravenous and subcutaneous routes should be reserved for patients who have pain crises or considerable intermittent pain [42]. Intramuscular injections should be avoided.

Extra (rescue) doses of opioids are necessary for breakthrough pain. No individual opioid has been shown to be better than another for breakthrough pain [51]. The most appropriate option is the immediate-release form of the same opioid in routine use for pain control. This approach increases efficacy while minimizing the risk of adverse effects [1; 9; 42]. However, if fentanyl or methadone is the routinely used drug, morphine or hydromorphone should be used for rescue doses. The rescue dose should be 5% to 15% of the 24-hour dose [9; 15; 42]. Rescue doses may be repeated at intervals determined by the route of administration; oral doses may be repeated every hour, subcutaneous doses may be given every 30 minutes, and intravenous doses may be given every 5 to 10 minutes. If three or more rescue doses are needed in a 24-hour period, the dose of the routinely used drug should be titrated 25% to 100%, according to the intensity of the pain [42]. There is limited evidence that transmucosal fentanyl provides more rapid pain relief for breakthrough pain than morphine [52].

When pain responds poorly to escalated doses of an opioid, other approaches should be considered, including alternative routes of administration, use of alternate opioids (termed opioid rotation or opioid switching), use of coanalgesics, and non-pharmacologic approaches. Opioid rotation has been shown to offer improvement in more than 50% of patients who have chronic pain and a poor response to one opioid [53]. When changing the route of administration or the opioid, the dose of the new opioid should be 50% to 75% of the equianalgesic dose [29]. Evidence suggests that the traditionally recommended equianalgesic doses for the fentanyl transdermal patch are subtherapeutic for patients with chronic cancer-related pain, and more aggressive approaches may be warranted [10; 29].

Opioids are associated with many side effects, the most notable of which is constipation, occurring in nearly 100% of patients. The universality of this side effect mandates that once extended treatment with an opioid begins, prophylactic treatment with laxatives must also be initiated. Tolerance to other side effects, such as nausea and sedation, usually develops within three to seven days. Some patients may state that they are “allergic” to an opioid. It is important for the physician to explore what the patient experienced when the drug was taken in the past, as many patients misinterpret side effects as an allergy. True allergy to an opioid is rare [1; 9]. Patients and families also fear that high doses of opioids can hasten death (the so-called double effect); this is unsubstantiated by research [54; 55; 56; 57].

When opioids are prescribed, careful documentation of the patient’s history, examinations, treatments, progress, and plan of care are especially important from a legal perspective. This documentation must provide evidence that the patient is functionally better off with the medication than without [15]. In addition, physicians must note evidence of any dysfunction or abuse.

Adjuvant (coanalgesic) agents are often used in conjunction with opioids and are usually considered after the use of opioids has been optimized [15]. The primary indication for these drugs is adjunctive because they can provide relief in specific situations, especially neuropathic pain. Examples of adjuvant drugs are tricyclic antidepressants, corticosteroids, anticonvulsants, and local anesthetics (**Table 2**). Tricyclic antidepressants are recommended for burning, stinging pain that is continuous or when underlying depression or insomnia is present [52; 60]. Another class of antidepressants, selective serotonin reuptake inhibitors (SSRIs), have been relatively ineffective as analgesic agents [52; 59]. Anticonvulsants are suggested for neuropathic pain and lancinating, paroxysmal pain [61]. Low doses of prednisone have been found to be effective for vasculitic neuropathy, bone pain, and other cancer-related pain [62; 63; 64].

ADJUVANT ANALGESICS			
Indication	Drugs	Typical Starting Dose*	Titration Recommendations
Spinal cord compression, malignant bone and nerve pain	Prednisone	20–40 mg PO, daily in divided doses	
	Dexamethasone	4–16 mg PO, daily in divided doses	
Dysesthetic and paroxysmal lancinating pain	Gabapentin	300–900 mg PO, 3 times daily	Increase by 100–300 mg every 1 to 3 days
	Phenytoin	200–300 mg PO, daily	
	Carbamazepine	800 mg PO, daily	Increase every 3 days
	Lamotrigine	25 mg PO, daily	Increase by 25–50 mg/day per week
	Topiramate	25–50 mg PO, daily	Increase by 25–50 mg/day per week
	Oxcarbazepine	300 mg PO, 2 times daily	Increase by 300 mg every week
	Levetiracetam	500 mg PO, 2 times daily	
Neuropathic and musculoskeletal pain	Amitriptyline Imipramine Doxepin Clomipramine Desipramine Nortriptyline	10–25 mg PO, daily at bedtime	Increase to therapeutic dose of 50–150 mg daily in divided doses
Bone pain	Pamidronate	90 mg IV (over 2 hrs), monthly	
Visceral pain	Octreotide Scopolamine	100–600 mg IV or SC, daily 0.8–2.0 mg SC, daily	
Second-line treatment of neuropathic pain (used with anticonvulsant)	Baclofen	5 mg PO, 2 times daily	Increase by 5 mg every 3 days to reach target dose of 40–80 mg/24 hr
Neuropathic pain refractory to anticonvulsants and opioids	Lidocaine	1–3 mg/kg IV, as loading dose (over 20 to 30 min), followed by infusion of 0.5–2 mg/kg/hr	
Postherpetic neuralgia	Capsaicin cream	0.075% cream, 4 times daily	
*Doses given are guidelines; actual doses should be determined on an individual basis.			
Source: [1; 9; 15; 42; 58; 59]			Table 2

## NONPHARMACOLOGIC MANAGEMENT

Several nonpharmacologic approaches are therapeutic complements to pain-relieving medication, lessening the need for higher doses and perhaps minimizing side effects. These interventions can help decrease pain or distress that may be contributing to the pain sensation. Approaches include

palliative radiotherapy, complementary/alternative methods, manipulative and body-based methods, and cognitive/behavioral techniques. The choice of a specific nonpharmacologic intervention is based on the patient's preference, which, in turn, is usually based on a successful experience in the past.

Palliative radiotherapy is effective for managing cancer-related pain, especially bone metastases [25; 65; 66]. Bone metastases are the most frequent cause of cancer-related pain; 50% to 75% of patients with bone metastases will have pain and impaired mobility [65]. External beam radiotherapy is the mainstay of treatment for pain related to bone metastases. At least some response occurs in 70% to 80% of patients, and the median duration of pain relief has been reported to be 11 to 24 weeks [65]. It takes one to four weeks for optimal therapeutic results [65; 66].

However, palliative radiotherapy has become a controversial issue. Although the benefits of palliative radiotherapy are well documented and most hospice and oncology professionals believe that palliative radiotherapy is important, this treatment approach is offered at approximately 24% of Medicare-certified freestanding hospices, with less than 3% of hospice patients being treated [67; 68; 69]. Reimbursement issues present a primary barrier to the use of palliative radiotherapy, and the cost of the treatment is prohibitive for many hospices, especially smaller ones [67; 68; 69]. Among other barriers to the utilization of palliative radiotherapy are short life expectancy, transportation issues, patient inconvenience, and lack of knowledge about the benefits of palliative radiotherapy in the primary care community [66; 67; 68; 70].

Two common complementary/alternative methods for pain relief are acupuncture and yoga. Acupuncture involves the insertion of needles beneath the skin to stimulate peripheral nerves to provide pain relief. In general, relief occurs 15 to 40 minutes after stimulation. Relief seems to be related to the release of endorphins and a susceptibility to hypnosis [1]. The efficacy of acupuncture for relieving pain has not been proven, as study samples have been small. However, it may be beneficial for musculoskeletal or nerve pain [1; 71]. Hatha

yoga is the branch of yoga most often used in the medical context, and it has been shown to provide pain relief for patients who have osteoarthritis and carpal tunnel syndrome but it has not been studied in patients at the end of life. Yoga may help relieve pain indirectly in some patients through its effects on reducing anxiety, increasing strength and flexibility, and enhancing breathing [72]. Yoga also helps patients feel a sense of control.

Manipulative and body-based methods include application of cold or heat, massage and vibration, positioning, and exercise. The application of cold and heat are particularly useful for localized pain and have been found to be effective for cancer-related pain caused by bone metastases or nerve involvement, as well as for prevention of breakthrough incident pain [1]. Alternating application of heat and cold can be soothing for some patients, and it is often combined with other nonpharmacologic interventions.

Cold can be applied through wraps, gel packs, ice bags, and menthol. It provides relief for pain related to skeletal muscle spasms induced by nerve injury and inflamed joints. Cold application should not be used for patients with peripheral vascular disease. Heat can be applied as dry (heating pad) or moist (hot wrap, tub of water) and should be applied for no more than 20 minutes at a time, to avoid burning the skin. Heat should not be applied to areas of decreased sensation or with inadequate vascular supply, or for patients with bleeding disorders.

Massage, which can be broadly defined as stroking, compression, or percussion, has led to significant and immediate improvement in pain in the hospice setting [73]. Both massage and vibration are primarily effective for muscle spasms related to tension or nerve injury, and massage can be carried out with simultaneous application of heat or cold. Massage may be harmful for patients with coagulation abnormalities or thrombophlebitis [1].

Changing the patient's position in the bed or chair may help relieve pain and also helps minimize complications such as decubitus ulcers, contractures, and frozen joints. Members of the healthcare team as well as family members and other informal caregivers can help reposition the patient for comfort and also perform range-of-motion exercises. Physical and occupational therapists can recommend materials, such as cushions, pillows, mattresses, splints, or support devices.

Nonpharmacologic management of pain also includes cognitive/behavioral approaches such as relaxation and breathing, imagery, and distractions. Focused relaxation and breathing can help decrease pain by easing muscle tension. Progressive muscle relaxation, in which patients follow a sequence of tensing and relaxing muscle groups, has enabled patients to feel more in control and to experience less pain [1]. This technique should be avoided if the muscle tensing will be too painful.

Focused relaxation and breathing help provide distraction from pain. Other methods of distraction include reciting a poem, meditating with a calm phrase, watching television or movies, playing cards, visiting with friends, or participating in crafts. Imagery is among the most effective of the cognitive strategies for pain relief and works especially well when it involves as many sites and senses as possible [74; 75]. Some research has shown that the efficacy of music therapy is similar to that of relaxation for relieving pain [76; 77].

Music therapy and art therapy are also becoming more widely used as nonpharmacologic options for pain management [78; 79]. Music therapy works best when guided by an individual trained in using it who can involve patients in selecting music to hear, playing music on instruments, or song writing. Research suggests that art therapy contributes to a patient's sense of well-being [80]. Creating art helps patients and families to explore thoughts and fears during the end of life. An art therapist can help the creators reflect on the implications of the art work. Art therapy is especially helpful for patients who have difficulty expressing feelings with words, for physical or emotional reasons.

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## LEGAL AND ETHICAL ISSUES RELATED TO THE TREATMENT OF PAIN

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Fear of license suspension for inappropriate prescribing of controlled substances is also prevalent, and a better understanding of pain medication will enable physicians to prescribe accurately, alleviating concern about regulatory oversight. Physicians must balance a fine line; on one side, strict federal regulations regarding the prescription of schedule II opioids (morphine, oxycodone, methadone, hydromorphone) raise fear of Drug Enforcement Agency investigation, criminal charges, and civil lawsuits [81; 82; 83]. Careful documentation on the patient's medical record regarding the rationale for opioid treatment is essential [83]. On the other side, clinicians must adhere to the American Medical Association's Code of Ethics, which states that failure to treat pain is unethical. The code states, in part: "Physicians have an obligation to relieve pain and suffering and to promote the dignity and autonomy of dying patients in their care. This includes providing effective palliative treatment even though it may foreseeably hasten death" [84]. In addition, the American Medical Association Statement on End-of-Life Care states that patients should have "trustworthy assurances that physical and mental suffering will be carefully attended to and comfort measures intently secured" [85].

Physicians should consider the legal ramifications of inadequate pain management and understand the liability risks associated with both inadequate treatment and treatment in excess. The undertreatment of pain carries a risk of malpractice liability, and this risk is set to increase as the general population becomes better educated about the availability of effective approaches to pain management at the end of life [15]. Establishing malpractice requires evidence of breach of duty and proof of injury and damages. Before the development of various guidelines for pain management, it was difficult to establish a breach of duty, as this principle is defined by nonadherence to the standard of care in a designated specialty. With such standards now

in existence, expert medical testimony can be used to demonstrate that a practitioner did not meet established standards of care for pain management. Another change in the analysis of malpractice liability involves injury and damages. Because pain management can be considered as separate from disease treatment and because untreated pain can lead to long-term physical and emotional damage, claims can be made for pain and suffering alone, without wrongful death or some other harm to the patient [86].

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## CONCLUSION

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Unrelieved pain is the greatest fear among patients with a life-limiting disease [29]. This fear has been substantiated by findings from studies demonstrating undertreatment of pain among patients with a variety of chronic diseases and even for patients enrolled in palliative care or hospice programs [87; 88; 89; 90; 91; 92; 93]. Healthcare professionals have acknowledged that the treatment of pain is inadequate [94]. Healthcare professionals should strive to enhance their knowledge of key strategies to achieve high-quality pain management at the end of life, as detailed in this course.

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