

DEFINITIONS	<p>Pain: a subjective unpleasant sensory and emotional experience associated with actual or potential tissue damage Acute pain: sudden onset, expected to last a short time, and clearly linked to a specific bodily insult or injury Chronic or persistent pain: lasts at least 3–6 months, beyond the normal tissue healing time</p>																											
BACKGROUND	<ul style="list-style-type: none"> Present in 25%–50% of community-dwelling adults ≥65 years old and 45%–80% of nursing home residents. Persistent pain affects at least 116 million adults in United States. Pain is commonly underdiagnosed and undertreated in cognitively impaired older adults and may present as behavioral disturbances (agitation) or depression. Physical, psychological, social, and spiritual concerns can affect a patient's perception and tolerance of pain; a multidisciplinary approach (involving physical therapists, psychologists, pharmacists, chaplains, social workers, etc) for assessment and treatment can be helpful. 																											
HISTORY OF PRESENT ILLNESS	<p>History can help differentiate type of pain and guide management.</p> <table border="1" data-bbox="334 625 1533 1087"> <thead> <tr> <th>Pain Type</th> <th>Nociceptive Somatic</th> <th>Nociceptive Visceral</th> <th>Neuropathic</th> </tr> </thead> <tbody> <tr> <td>Examples</td> <td>Arthritis, fracture, bone metastases, postoperative, etc</td> <td>Renal colic, constipation, etc</td> <td>Radiculopathy, drug toxicities, post-herpetic neuralgia, diabetic neuropathy, etc</td> </tr> <tr> <td>Palliative/ Provocative Factors</td> <td>Movement</td> <td>Variable; may be provoked by oral intake</td> <td>Position changes may provoke radiculopathy</td> </tr> <tr> <td>Quality</td> <td>Throbbing, aching, stabbing, gnawing</td> <td>Cramping, tearing, dull, aching, squeezing, deep</td> <td>Burning, numb, tingling, sharp, shooting, "electric shock-like"</td> </tr> <tr> <td>Radiation</td> <td>Well localized</td> <td>May refer to other sites</td> <td>Nerve or dermatomal distribution</td> </tr> <tr> <td>Timing</td> <td>Constant</td> <td>Colicky, intermittent</td> <td>Constant or paroxysmal</td> </tr> </tbody> </table> <ul style="list-style-type: none"> For severity, see rating scales below. Assess functional status: how does pain affect ability to perform activities of daily living (ADLs) and instrumental activities of daily living (IADLs)? Be aware of complex regional pain syndrome, characterized by pain and/or sensory changes (allodynia, hyperalgesia) with combination of edema, regional sweating abnormality, changes in blood flow, trophic features. Be aware of mixed or undetermined pain (myofascial pain syndrome, fibromyalgia, somatoform pain disorders) with symptoms often out of proportion to identifiable pathology. 				Pain Type	Nociceptive Somatic	Nociceptive Visceral	Neuropathic	Examples	Arthritis, fracture, bone metastases, postoperative, etc	Renal colic, constipation, etc	Radiculopathy, drug toxicities, post-herpetic neuralgia, diabetic neuropathy, etc	Palliative/ Provocative Factors	Movement	Variable; may be provoked by oral intake	Position changes may provoke radiculopathy	Quality	Throbbing, aching, stabbing, gnawing	Cramping, tearing, dull, aching, squeezing, deep	Burning, numb, tingling, sharp, shooting, "electric shock-like"	Radiation	Well localized	May refer to other sites	Nerve or dermatomal distribution	Timing	Constant	Colicky, intermittent	Constant or paroxysmal
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SEVERITY/PAIN SCALES	<p>Select validated scale based on language preference and presence of sensory impairment; use the same scale to assess for changes with treatment.</p> <ul style="list-style-type: none"> Numeric Rating Scale: 0 indicates no pain, 10 indicates worst pain imaginable <ul style="list-style-type: none"> Can be used in patients with mild to moderate cognitive impairment Faces Pain Scale: Patient chooses facial expression that corresponds to his or her pain level. <ul style="list-style-type: none"> Can be used in patients who do not speak English, or with mild to moderate cognitive impairment; avoid in patients with visual impairment Verbal Descriptor Scale: "no pain" to "pain as bad as it could be" <ul style="list-style-type: none"> Can be used in patients with mild to moderate cognitive impairment Pain Assessment IN Advanced Dementia (PAINAD): www.healthcare.uiowa.edu/igec/tools/pain/PAINAD.pdf <ul style="list-style-type: none"> Can be used in patients with severe cognitive impairment 																											
PAST MEDICAL/SOCIAL HISTORY	<ul style="list-style-type: none"> Anxiety/depression Arthritis 	<ul style="list-style-type: none"> Substance use/abuse Osteoporosis 	<ul style="list-style-type: none"> Cancer Sleep disturbance 																									
MEDICATIONS	<ul style="list-style-type: none"> Thoroughly review all medications and consider their potential contributions to pain. Assess analgesic history: effectiveness and adverse effects of current and previous prescription drugs, OTC drugs, natural remedies. 																											
PHYSICAL EXAMINATION	<ul style="list-style-type: none"> Pay close attention to reported site of pain and any potential source of referred pain. Musculoskeletal exam, including range of motion and palpation: look for potential trigger points/taut muscle bands (characteristic of myofascial pain). Neurologic exam Psychiatric exam: assess mental status and screen for anxiety, depression. 																											

NON-OPIOID MEDICATIONS

- Select initial treatment based on severity of pain, type of pain, and impact on function.
- Consider cost, availability, comorbidities, adverse effects, and renal and liver function.

Medication	Starting Dosage	Usual Effective Dosage (Daily Max)	Analgesia		Titrate After:	Notes
			Onset	Duration		
Acetaminophen (APAP)	650 mg po q6–8h	2–4 g/d (3–4 g from all sources)	<1 hr	4–6 h	4–6 doses	Typically effective for mild to moderate somatic and visceral pain. Reduce maximum dose by 50%–75% in patients with hepatic insufficiency or alcohol abuse.
Dexamethasone	1–2 mg po q6–12h	Variable	No data	No data	No data	Corticosteroids may be helpful for pain associated with swelling, inflammation, tumors, and neuropathic pain.
NSAIDs	<ul style="list-style-type: none"> ■ Use judiciously, if at all, only after APAP has been tried, and only in highly select individuals. ■ Significant adverse effects include renal dysfunction, GI bleeding, platelet dysfunction, fluid retention, exacerbation of hypertension or heart failure, and precipitation of delirium. ■ Nonacetylated salicylates such as salsalate and trisalicylate may have less renal toxicity and antiplatelet activity, but evidence supporting this theory is sparse. ■ Topical NSAIDs appear to be safe and effective in the short term, but studies on longer-term use are lacking. 					
Bisphosphonates	<ul style="list-style-type: none"> ■ Consider for pain from malignant bone metastases. 					

ANTICONVULSANTS

- Typically effective for neuropathic pain, fibromyalgia
- Numerous drug interactions
- Drug class adverse effects include sedation, dizziness, peripheral edema.
- Switch if ineffective or intolerable effects.

Medication	Starting Dosage	Usual Effective Dosage (Daily Max)	Analgesia		Titrate After:	Notes
			Onset	Duration		
Carbamazepine	100 mg po qd	800–1,200 mg/d (2,400 mg)	No data	No data	3–5 d	Approved for trigeminal and glossopharyngeal neuralgia. Risk of leukopenia, SIADH, thrombocytopenia; monitor CBC, comprehensive metabolic panel.
Gabapentin	100 mg po qhs	300–900 mg q8hr (3,600 mg)	No data	No data	1–2 d	Adjust dose based on CrCl. Useful for post-herpetic neuralgia. Off-label use includes peripheral neuropathy, fibromyalgia, and restless legs syndrome.
Pregabalin	50 mg po qhs	300 mg/d (450–600 mg)	As early as 1 week	No data	7 d	Reduce dosage for a CrCl of 30–60 mL/min. Primary indications: post-herpetic neuralgia, peripheral neuropathy, fibromyalgia. Off-label use includes restless legs syndrome.

ANTIDEPRESSANTS

- Typically effective for neuropathic pain, fibromyalgia
- No data on onset and duration of analgesia
- Tricyclic antidepressants (TCAs) may help for migraines, tension headaches, and arthritis.
- Use cautiously with comorbid disease and in combination with other medication.

Medication (Class)	Starting Dosage	Usual Effective Dosage (Daily Max)	Titrate After:	Notes
Duloxetine (SNRI)	20 mg/d po	60 mg/d	7 d	Adverse events include nausea, dizziness, dry mouth, constipation, diarrhea, urinary hesitancy. Avoid if CrCl <30 mL/min.
Venlafaxine (SNRI)	37.5 mg/d ER po	75–225 mg/d (225 mg ER dosage form)	4–7 d	Associated with dose-related ↑ in blood pressure, heart rate; taper when discontinuing to avoid withdrawal. Reduce total daily dose by 25%–50% if CrCl is 30–89 mL/min. Reduce dose by 50% if CrCl <30 mL/min. Monitor for anticholinergic adverse effects.
Desipramine, nortriptyline (TCAs)	10 mg po qhs	25–100 mg qhs (variable; doses >75–100 mg rarely tolerated by older adults)	3–5 d	Monitor for anticholinergic adverse effects. Avoid amitriptyline in older adults because of adverse effects.

GENERAL PRINCIPLES OF OPIOID PRESCRIBING

- Typically effective for moderate to severe somatic, visceral, and neuropathic pain
 - For opioid naive patients* start with oral short-acting opioid at the lowest dose.
 - For intermittent pain, consider using opioid medication on an as-needed basis.
 - For continuous pain, consider scheduling opioids.
 - Only consider starting long-acting opioid medication when:**
 - Pain is severe enough to require daily, around-the-clock, long-term opioid treatment and alternative treatment options are ineffective
 - The patient tolerated short-acting opioid pain medication taken regularly for at least 1 week
 - The amount of short-acting opioid taken daily (for at least 1 week) is equal to or more than the morphine equivalent amount of long-acting opioid that will be started.
 - The patient is able to understand and strictly follow medication instructions or a reliable caregiver is available
 - With long-acting opioids, continue to have short-acting opioid medication available as needed to treat breakthrough pain. In general, breakthrough dose = 10% of total 24-h opioid dosage given q1–4h prn.
- Drug class adverse effects:**
- Constipation:** tolerance to this adverse effect does not occur; therefore, treat patients started on opioids with bowel stimulants prophylactically whenever possible.
 - Nausea, vomiting:** usually resolves spontaneously after first few doses, may respond to time-limited treatment with antiemetics (or haloperidol for opioid-induced nausea in palliative care setting when prognosis is limited as long as patient does not have parkinsonian features or Lewy body dementia).
 - Sedation:** usually resolves gradually within days to weeks of consistent opioid use.
 - Respiratory depression:** typically preceded by sedation, can be problematic if underlying respiratory dysfunction exists or if opioids used in combination with sedatives; can be reversed with naloxone.

COMMONLY USED SHORT-ACTING OPIOIDS

Medication	Morphine Equivalent (route)	Starting Dosage ^{a,b}	Analgesia		Titrate After:	Notes
			Onset	Duration		
Tramadol	150–300 mg (po)	25 mg po q4–6h	1 h	9 h	4–6 doses	Lowers seizure threshold (avoid if known seizure disorder), increases risk of hypoglycemia; watch for serotonin syndrome if on other serotonergic medications. Max dosage for patients >75 years old is 300 mg/d.
Codeine or Codeine + APAP	200 mg (po)	15 mg po q4–6h	0.5–1 h	4–6 h	3–4 doses	Daily dose limited by fixed-dose combinations with APAP. Does not work for 10% of the general population. If no analgesia in a few days, rotate to another drug.
Hydrocodone (+ APAP)	30 mg (po)	2.5–5 mg po q4–6h	No data	No data	3–4 doses	Daily dose limited by fixed-dose combinations with APAP or NSAIDs. Limit APAP to 3 g/d.
Morphine IR (immediate release)	30 mg (po); 10 mg (IV, IM, SC)	2.5–10 mg po q4h; 2.5–5 mg IV or IM q4h	po 30 min IV 5–10 min	4 h (po, IV)	1–2 doses	Caution if renal insufficiency because active metabolites can accumulate, increasing risk of prolonged sedation and possible neurotoxicity. Reduce dose if CrCl <50 mL/min. Consider alternative opioid medication if CrCl <20 mL/min.
Oxycodone IR	20 mg (po)	2.5–5 mg po q4–6h	10–15 min	3–6 h	3–4 doses	Daily dose limited if using fixed-dose combinations with APAP or NSAIDs. Some experts and limited data suggest that oxycodone is also safer than morphine in kidney failure.
Hydromorphone	7.5 mg (po); 1.5 mg (IM, IV, SC)	1–2 mg po q3–6h; 0.1–0.3 mg IV q2–3h	po 15–30 min IV 5 min	3–4 h (po, IV)	3–4 doses	Very potent; has fewer adverse effects in patients with renal failure and, therefore, is many experts' first choice for this population.

**OPIOIDS
(cont'd)**

COMMONLY USED LONG-ACTING OPIOIDS^c

Medication	Morphine Equivalent (route)	Starting Dosage ^c	Analgesia		Titrate After:	Notes												
			Onset	Duration														
Morphine SR (sustained release)	30 mg (po)	15 mg po q8-24h	N/A	8-24 h depending on formulation	3-5 d	Caution if renal insufficiency (see morphine IR). Most formulations cannot be split or crushed.												
Oxycodone SR	20 mg (po)	10 mg po q12h	N/A	≤12 h	3-5 d	Some patients with moderate to severe pain may need q8h dosing instead of q12h. Most formulations cannot be split or crushed.												
Fentanyl transdermal	See notes	12.5-25 mcg/h patch q72h	6 h after initial placement	72-96 h after removal of patch with no replacement	2 or 3 patch changes	Not to be used in opioid-naive patients.^{b,c} Duration of effect may range from 48-96 h. May take 2 or 3 patch changes before steady state blood levels are reached. Incomplete cross-tolerance accounted for in conversion table when converting from morphine to fentanyl. When converting from fentanyl to other opioid, reduce equianalgesic amount by 50%. <table border="1" data-bbox="1224 856 1511 1066"> <thead> <tr> <th>MS (mg)</th> <th>Patch (mcg)</th> </tr> </thead> <tbody> <tr> <td>30-59</td> <td>12.5</td> </tr> <tr> <td>60-134</td> <td>25</td> </tr> <tr> <td>135-224</td> <td>50</td> </tr> <tr> <td>225-314</td> <td>75</td> </tr> <tr> <td>315-404</td> <td>100</td> </tr> </tbody> </table>	MS (mg)	Patch (mcg)	30-59	12.5	60-134	25	135-224	50	225-314	75	315-404	100
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Methadone	5% of total daily dose of oral morphine = total daily dose of oral methadone (if morphine >2,000 mg/d, consult specialist)	1-2.5 mg po qd-bid	0.5-1 h	4-8 h after single dose 22-48 h with repeated doses	7 d	Very low doses are well tolerated. At higher doses, use with extreme caution due to long and variable half-life in older adults. Can be split or crushed; available as liquid.												

^aStarting doses for opioid-naive patients.

^bOpioid-tolerant patients defined by the FDA as those who have had at least 60 mg of oral morphine (or morphine equivalent) daily for 1 week.

^cConsult experts if inexperienced in prescribing long-acting opioids. Refer to general principles of opioid prescribing (above) for important considerations about starting long-acting opioids and appropriate dosages.

**NONPHARMA-
COLOGIC
MANAGEMENT**

NONPHARMACOLOGIC TREATMENT OF PERSISTENT PAIN

Intervention*	Problems Studied	Outcomes
Exercise	Lower extremity osteoarthritis, chronic pain	Positive
Acupuncture	Back, knee, shoulder, neck pain	Positive
Massage	Back, neck pain	Positive
Cognitive behavioral training	Chronic pain	Positive
Guided imagery with progressive muscle relaxation	Chronic osteoarthritis pain	Positive
Music	Chronic pain	Positive
Self-management education	Chronic pain, low back pain	Positive
TENS	Knee, back pain	Mixed
Qigong	Back, neck pain	Mixed
Mindfulness-based meditation	Low back pain	Mixed

*All interventions have shown short-term efficacy and are typically well tolerated, with low risk and low cost.