



PRIMARY CARE MANAGEMENT OF

Neck Pain

This care process model (CPM) was created by the Functional Restoration/Chronic Pain Development Team of Intermountain Healthcare's Pain Management Service. Based on national guidelines,^{APTA,DOU} emerging evidence, and expert opinion, this CPM provides guidance for primary care providers on diagnosis and treatment of acute and chronic neck pain. This document presents an evidence-based approach that is appropriate for most patients; it should be adapted to meet the needs of individual patients and situations, and should not replace clinical judgment.

► Why Focus ON NECK PAIN?

- **Prevalence and cost.** In the general population, the lifetime prevalence of neck pain is as high as 71%. Between 10% and 22% of adults have neck pain at any given time.^{CLIN} Neck pain is second only to low back pain in annual workers' compensation fund's expenses in the U.S.^{APTA}
- **Recurrence and chronicity rates.** Neck pain is often a self-limiting problem; however, recurrence and chronicity rates are high. One study found that 30% of patients with neck pain develop chronic symptoms, and 14% of patients with an episode of neck pain will have pain for 6 months or longer.^{APTA} One critical challenge is predicting which patients are at risk for chronic neck pain and intervening appropriately.

► Key Points IN THIS CPM

- **In most cases, imaging tests are NOT needed to diagnose acute neck pain.** Diagnostic imaging on neck pain can be misleading; imaging often identifies abnormalities that are not contributing to current symptoms. One study found abnormalities on the radiographs of 79% of asymptomatic patients (disk space narrowing, endplate sclerosis, or osteophytes).^{DOU} If there are no "red flags" (signs of serious pathology or injury), avoid imaging tests.
- **For most neck pain, conservative treatment and self-care** is adequate and effective. The core treatment for acute neck pain includes education and reassurance, **encouragement to remain active**, a short course of medications, and a course of physical therapy.
- **Psychosocial factors can complicate the course of neck pain.** If neck pain persists beyond 3 to 6 weeks despite core treatment, consider psychosocial issues and evaluation (see page 6).
- **Identifying neurological signs and symptoms that indicate myelopathy early** and immediate referral to a spine surgeon is critical. If myelopathy is present, optimal neurological recovery depends on early surgical decompression.^{UTD1}
- **Physical therapy is best for patients with neck pain persisting beyond 6 weeks.** In the treatment of chronic neck pain and cervicogenic headache, physical therapy treatment that focuses on the neck and shoulder blade region is helpful.^{KAY}
- **Chronic neck pain that persists despite conservative treatment should be referred to a nonsurgical spine specialist and is best managed using a team approach.** Nonsurgical spine specialists include anesthesiologists, physical therapists, and physiatrists. A multidisciplinary team would involve primary care and possibly mental health specialists to encourage patient involvement in their own care.

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► GOALS

- Improve efficiency of neck pain care, using a team approach where appropriate.
- Reduce the use of ineffective imaging and therapeutic procedures.
- Increase the patient's understanding of effective neck pain management.
- Improve the patient's pain management, function, and satisfaction with care.

► MEASUREMENTS



- Pain prescriptions for neck pain
- Patients with a neck pain diagnosis referred for radiology
- Comorbidities diagnosed with neck pain

KEY DEFINITIONS

Types of arm and scapular pain:

Patients with neck pain sometimes experience radiating arm pain or numbness, sensory deficits, or motor dysfunction in the neck or upper extremities.^{EUB} Arm pain falls into 3 general categories:

- **Referred neck pain** radiates into the neck, head, upper trap, scapulas, and toward the arm, without neuropathic findings (listed below). Referred arm pain may not be caused by the spinal nerve root. (Note: Arms that are tender to palpation suggest a primary issue of the arm, not radicular pain.)
- **Radicular pain** is sharp, shooting, burning, or aching pain that radiates along the course of a nerve root — but without neurologic changes such as sensory disturbances, muscle weakness, or hypoactive deep tendon reflexes. With radicular pain, patients usually have tenderness of the neck, upper trap, and scapula.
- **Radiculopathy** is caused by dysfunction of the spinal nerve root. Signs and symptoms include pain in the distribution of the nerve root, dermatomal sensory disturbances, weakness of muscles innervated by that nerve root, and hypoactive deep tendon reflexes of the same muscle. With radiculopathy, patients usually have tenderness in the muscles innervated by the affected nerve and upper trapezius.

Myelopathy is spinal cord dysfunction due to a variety of conditions. See table (c) on page 3 for signs and symptoms.

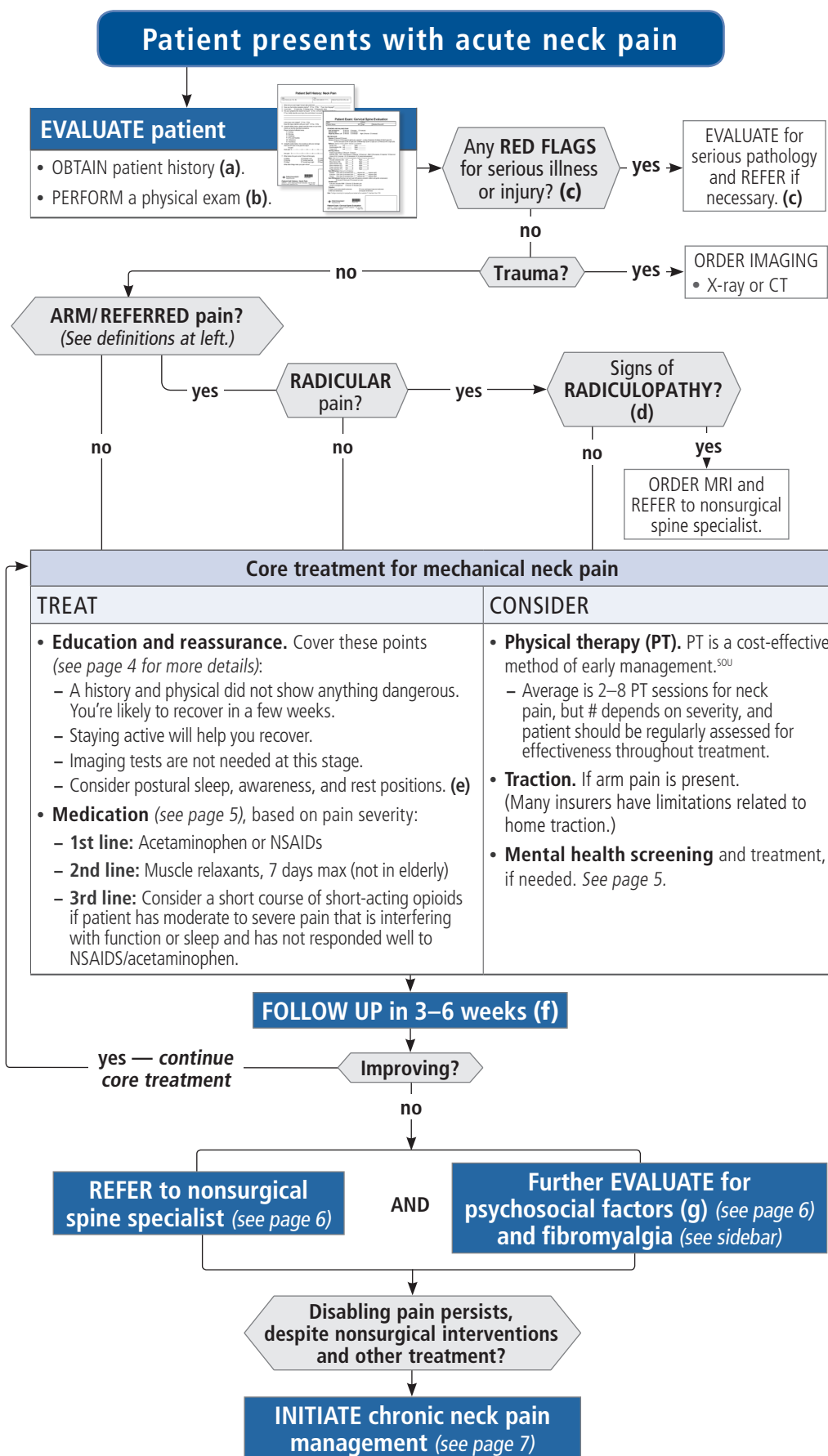
Fibromyalgia is based on the following characteristic features:

- Pain above and below the waist that is bilateral and axial for ≥3 months
- Somatic complaints, including fatigue and sleep, mood, and cognitive disturbance



Stages of neck pain: This CPM defines neck pain stages based on function and response to treatment:

- **Acute neck pain:** Pain <6 weeks
- **Subacute neck pain:** Continued pain after 6 weeks, but patient continues to function well and core treatment provides some relief; patient may also be receiving nonsurgical spine specialist treatment at this stage.
- **Chronic neck pain:** Core neck pain treatment has failed, nonsurgical spine specialist treatment has not helped, the patient is not necessarily a surgery candidate — and persistent pain interferes with function and alters the patient’s life.

▶ ALGORITHM: DIAGNOSIS AND CORE TREATMENT



ALGORITHM NOTES AND ASSESSMENT TOOLS

(a) Patient history	(b) Physical exam
<p>The patient history for acute neck pain should include the components below. Intermountain's Patient Self History: Neck Pain can help in obtaining this information.</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <ul style="list-style-type: none"> Mechanism of injury (if applicable) Symptoms Prior neck trauma or symptoms Description of current pain, including time of onset and how pain responds to positioning Previous neck history, including tests and treatments </div> <div style="width: 45%;"> <ul style="list-style-type: none"> Systemic disease (osteoporosis, cancer, arthritis, infection, etc.) Neurological symptoms Biological and psychosocial risk factors </div> </div> 	<p>The physical exam should include the components below.^{DOU} Intermountain's Neck Pain Physical Exam can help in the exam.</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <ul style="list-style-type: none"> Posture, visible deformities Motor and sensory function Reflexes Hoffman Clonus Babinski Shoulder range of motion impingement and rotator cuff function </div> <div style="width: 45%;"> <ul style="list-style-type: none"> Range of motion: rotation, flexion, extension Palpitation of soft tissue and bony structures Special maneuvers (described in form): <ul style="list-style-type: none"> – Spurling's test – Hawkins Impingement Sign </div> </div> 

(c) Red flag evaluation and response			
Suspected condition and signs	Labs	Imaging (See page 6 for more info)	Referral
Myelopathy/upper motor neuron changes: gait disturbance, balance difficulties, weakness, loss of coordination, sphincter dysfunction, hyperreflexia, Babinski sign, clonus, Hoffman, lack of hand coordination spasticity in the upper and lower extremities, fine motor skills diminished, upper motor neuron changes, associated radicular symptoms, nonspecific urinary complaints		<ul style="list-style-type: none"> MRI* (preferred) CT scan 	URGENT referral to ortho/neuro spine specialist or emergency department (positive or upgoing Babinski and clonus increase urgency)
Recent trauma with suspected cervical spine fracture or dislocation		<ul style="list-style-type: none"> CT scan (more sensitive than x-rays)^{NPTF} Standard 3-view x-ray.^{NPTF} Start with an upright lateral view to rule out fracture or dislocation. Avoid flex extension views until unstable neck ruled out. Best reviewed in emergency dept or by surgeon. 	URGENT referral to ortho/neuro spine surgeon or emergency dept
Suspected cancer: A prior history of malignancy, history of cancer, multiple cancer risk factors, or strong clinical suspicion/constitutional symptoms	CBC, ESR, CRP	<ul style="list-style-type: none"> X-ray (evaluate in context with ESR) MRI of the neck (T1, T2) w/gadolinium 	URGENT referral to spine specialist or emergency dept if patient exhibits severe pain, myelopathy or radiculopathy
Suspected infection or recent spinal procedure: fever, weight loss, night sweats, other systemic symptoms, immunocompromised patient, UTI, IV drug use, pain with rest or at night, or chronic steroid use	CBC, ESR, CRP	<ul style="list-style-type: none"> Consider MRI* with gadolinium or bone scan 	Referral to surgeon, or, if recent spinal injection or procedure, referral back to treating physician; consider infectious disease consult
Suspected rheumatic causes, such as rheumatoid arthritis that frequently presents as neck pain, morning stiffness that improves over the course of the day, redness/swelling in joints, joint deformation, extended morning stiffness, recent history (within 6 months) of chlamydia, red hot joints or joint deformity	CBC, ESR, CRP, RF, anti-CCP, HLA, B27		Referral to rheumatologist
Rheumatoid arthritis: aching and morning stiffness in the shoulders, hip girdle, and neck	CBC, ESR, CRP, RF, anti-CCP, HLA, B27		Referral to rheumatologist
Down's Syndrome: concern of C1–C2, joint instability		<ul style="list-style-type: none"> Cervical spine x-ray with flexion/extension 	
*Ensuring a high-quality MRI. To reduce the need for a repeat MRI, ensure that the imaging center uses a 1.5 tesla magnet. Large bore and standard MRIs usually provide better image quality than open MRIs. Order sedation if necessary to get a high-quality MRI. See page 6 for details on Intermountain's Spinal MRI Order Guidelines .			

(d) Radiculopathy
<p>Consider early referral to nonsurgical spine specialist for patients with radiculopathy. Patients with signs of radiculopathy may also need more frequent evaluation and follow-up. Signs of radiculopathy include:</p> <ul style="list-style-type: none"> Motor deficit Reflex deficit Sensory deficit Positive dural tension signs Reduction of pain with shoulder abduction and external rotation maneuvers. Have patient place their arm on their head.

(e) Postural sleep and rest positions
<ul style="list-style-type: none"> Sleep on your side or on your back (not on your stomach). Use a rounded pillow or rolled-up towel that supports the natural curve of your neck when you're sleeping (e.g., a small neck roll and a flatter pillow under your neck, or a special pillow with a built-in neck support). The pillow should be higher under your neck than under your head to keep the neck properly supported. Use a horseshoe-shaped pillow when sitting for long periods to hold head upright.

(f) Etiology of pain lasting longer than 6 weeks
<p>If pain lasts longer than 6–8 weeks, consider possibility of chronic pain (See page 7). Consider referral to nonsurgical spine specialist.</p>

(g) Assessing the risk of developing chronic pain
<ul style="list-style-type: none"> Psychosocial factors. Research has shown that psychosocial factors are an important prognostic indicator of prolonged disability for patients with neck pain.^{APTA} Fibromyalgia. Assess for fibromyalgia if patient presents with pain at ≥3 locations. (See sidebar, page 2.)

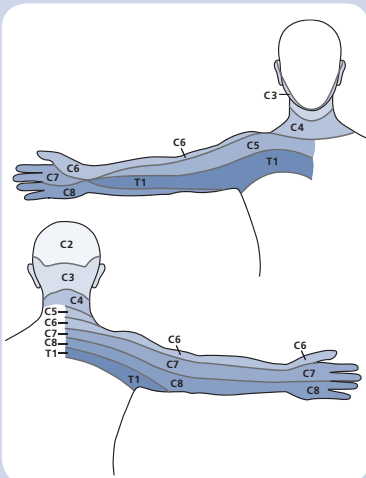
✓ KEY RECOMMENDATIONS

- Avoid imaging tests with acute neck pain, unless radiculopathy is present.
- Assume a biomechanical cause (if no red flags), unless injections identify a pain generator.
- Core treatment is staying active, posture modification, and pain meds used conservatively. Consider PT.

OTHER DISORDERS TO CONSIDER

- **Peripheral nerve dysfunction.** Order nerve conduction studies if concern is peripheral nerve dysfunction, such as carpal tunnel syndrome or thoracic outlet syndrome. (Note: Thoracic outlet syndrome is much less prevalent than cervical radiculopathy.)
- **Shoulder pain.** Shoulder pain usually presents in deltoid area or shoulder area; scapula pain usually generates from the neck.
- **Brachial plexus issues.** If radicular symptoms are present, brachial plexus etiology should also be considered.
- **Central cord syndrome myelopathy:** Indicated by trouble walking, hand clumsiness, and weakness.

FIGURE 2. Cervical dermatomes of radicular pain^{UTD2}



This image shows schematic representation of the cervical and T1 dermatomes. (There is no C1 dermatome.) Patients with nerve root syndromes may have pain, paresthesias, and diminished sensation in the dermatome of the nerve that is involved.^{UTD2}

▶ ACUTE MECHANICAL NECK PAIN

The most common causes for neck pain are mechanical in nature and are generated by pain receptors in the facet joints and capsule, ligaments and soft tissues, intervertebral discs, as well as the adjacent soft tissues. By far the majority of causes of acute neck pain in the absence of red flags are self-limiting and not serious. Serious disease or pathology (indicated by “red flags”) are much less common.^{DOU} (See page 3.)

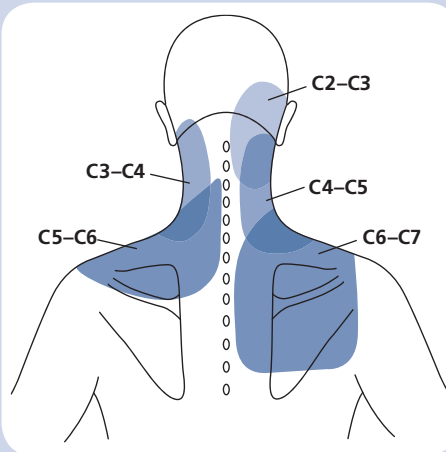
Etiology of neck pain

Proven causes of neck pain (with or without whiplash), according to a retrospective audit of a pain clinic’s records of consecutive neck pain patients over a 2-year period, are as follows (of patients who pursued and completed investigation):

- 55% facet pain (C2–C3 and C5–C6 most common)
- 16% disc pain
- 9% lateral atlanto-axial joint pain (C1–C2)
- 32% elusive diagnoses^{YIN}

In addition, 60% of neck pain persisting longer than 6 months after extension injury (like whiplash) is facet generated.^{MAN} Facet pain is usually unilateral. C2–C3 causes upper neck pain with headache. C5–C6 facet pain causes lower neck and upper trapezius pain. Disc pain is the same referral pattern as facet joints but often bilateral C1–C2 joint causes occipital pain often with severe restriction in rotation.

FIGURE 1. Dwyer pain referral patterns^{DWY}



A 1990 study of normal volunteers identified cervical zygapophyseal joint pain patterns, as indicated in this figure. Joints at segments C2–C3 and C6–C7 were stimulated by distending the joint capsule with injections of contrast medium, and each joint produced a pattern of pain. The resulting pain charts help physicians identify segmental location of symptomatic joints on patients presenting with neck pain.^{DWY}

Core treatment

This CPM recommends core treatment elements based on national guidelines and a method for stratifying treatment based on a patient’s risk of developing chronic pain.

Education and reassurance

To correct misconceptions, calm fears, and encourage patients to participate in their own recovery, focus on the following messages:

- **A detailed history and physical didn’t reveal any serious problem.** The spine is strong and flexible, and it’s difficult to damage or dislocate anything.
- **Most people recover in a few weeks.** Most people with acute mechanical neck pain improve within 2 weeks. Among those that don’t recover quite as quickly, many are back to normal work and activities within 3 months.

- **Staying active helps your neck recover in whiplash-associated disorder (WAD).** Research shows that an early return to regular activities acts as a means of pain control and recovery for WAD.^{APTA,DOU}
- **Imaging tests are NOT needed at this stage** (unless trauma indicated). An x-ray or MRI isn't necessary to know what to do, and imaging may lead to expensive, unnecessary treatment.^{DOU} For example, most of us have bulging discs that cause no symptoms.
- **Posture modifications are critical to your treatment.** Keep your neck straight, avoid heavy loads and straps over your shoulders, sleep with your neck supported, continue to exercise (see note (e) page 3), and so on, to reduce pain and speed recovery.
- **Avoid prolonged sitting in slouched positions** such as watching TV in bed, hunching over a laptop computer, or reading a mobile phone.

PATIENT EDUCATION

The Krames patient education library has several HealthSheets that can support patient education. Materials appear in iCentra based on diagnosis code, or you can access them through intermountain.net or intermountainphysician.org. See page 12 for more information.

The following HealthSheets are available to support patient education:

- *Understanding Neck Problems*
- *Neck Problems: Relieving Your Symptoms*
- *Know Your Neck: The Cervical Spine*

Appropriate pain medication, with a conservative approach

See the table below; note that opioids do not have better outcomes than NSAIDs.^{DOU}

	Class	Medication	Usual Dosing	Notes
1st line	Simple analgesics	acetaminophen (Tylenol)	500–650 mg, every 4 to 6 hours (max 3,000 to 4,000 mg per day)	<ul style="list-style-type: none"> • Before moving to 2nd-line meds, a 2-week to 4-week course of acetaminophen or NSAIDs is suggested. • Avoid NSAIDs for patients with chronic kidney disease or history of NSAID-related dyspepsia or bleeding PUD. • If ibuprofen or naproxen are not effective, consider switching to another NSAID before moving to muscle relaxants, steroids, or opioids. Refer to the <i>Chronic Pain CPM</i> for details on other NSAIDs that can be used in acute or chronic neck pain.
	NSAIDs	ibuprofen (Advil, Motrin)	800 mg, 3 times per day (max 2,400 mg per day)	
		naproxen (Aleve, Naprosyn)	500 mg, 2 times per day (max 1500 mg per day for up to 6 months, then 1000 mg max/day)	
2nd line	Muscle relaxants	tizanidine (Zanaflex)	4 mg, 3 times per day (max 36 mg per day)	<ul style="list-style-type: none"> • Limit muscle relaxants to a 7-day course. • Often used at night only due to sedation. • Muscle relaxants are contraindicated in elderly patients, due to fall risk and sedation. • Note that carisoprodol (Soma) is NOT recommended, due to risk of addiction and abuse issues.
		cyclobenzaprine (Flexeril)	10 mg, 3 times per day (max 30 mg per day)	
		methocarbamol (Robaxin)	750–1,500 mg, 4 times per day (max 6,000 mg per day for first 48–72 hours, then 4,000 mg per day)	
		baclofen (Lioresal)	10 mg, 3 times per day (max 80 mg per day)	
3rd line	Short-acting opioids	tramadol (Ultram)	25 mg to 100 mg every 4 to 6 hours (max 400 mg per day)	<ul style="list-style-type: none"> • Limit initial prescription to no more than 10–15 tablets. • Limit course of opioids to 2–3 weeks; the need for extended opioids should prompt a reevaluation of pathophysiology. • Avoid abrupt withdrawal of medication. • Tramadol is contraindicated if history of seizures or serotonin reuptake inhibition.
		hydrocodone/APAP (Lortab)	Hydrocodone 5–10 mg/APAP 325 mg every 4 to 6 hours (max 12 tablets per day)	
		oxycodone/APAP (Percocet)	Oxycodone 5 mg/APAP 325 mg every 4 to 6 hours (max 12 tablets per day)	
4th line	If pain is severe and above therapies have not been effective, consider early referral to nonsurgical spine specialist for evaluation. See page 6.			

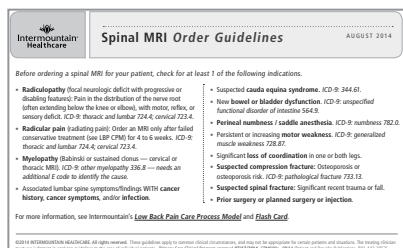
Setting patient expectations for physical therapy

The goal of physical therapy is for patients to become independent with their exercise regimen and to avoid dependence on treatments.^{UTD3}

Help patients referred to physical therapy understand the following points:

- Physical therapy includes guided exercise and home exercise plans — exercise is a long-term therapy for neck pain. (See page 8 for exercise advice to give patients who are not referred to PT.) Physical therapy is likely to include manual care practice and postural awareness and exercises.
- Symptoms may not improve after the first session. The average number of PT sessions for neck pain is between 2 and 8, depending on severity — rarely more than twice a week. There appears to be no additional benefit to providing frequent sessions over an extended time period.^{SOU}
- Physical therapy may include strategies to change their thinking patterns about pain and activity.

SPINAL MRI GUIDELINE



Intermountain has developed guidelines for when to order a spinal MRI exams at Intermountain facilities. These guidelines include a list of appropriate indications for spinal MRI imaging for back and neck pain, which enables you to identify medical necessity and can assist with preauthorization. This guideline is not designed to limit your ability to order cervical spine MRI exams; it facilitates appropriate use of spinal imaging. Click the image above to open the guideline, or see page 12 for information on accessing it.

MENTAL HEALTH INTEGRATION

Mental Health Integration (MHI) is a program that coordinates mental health services within the primary care clinic. For more information on the MHI process and tools (including baseline packets to screen for mental health disorders), see page 12. If your clinic does not have the MHI program, you can use the MHI screening packets and refer to a mental health specialist if necessary.

Nonsurgical spine specialist referral after 6 weeks

A nonsurgical spine specialist is the best treatment resource for patients with neck pain that persists beyond 6 weeks. These providers include physiatrists, anesthesia/pain management specialists, and sports medicine specialists. They may work independently, in spine programs, or in pain clinics.

Referral considerations

A multidisciplinary spine care program is the best option. These programs integrate nonsurgical treatment (injections, exercise, medications), physical therapy, surgical treatment, mental health, and other modalities. (For spine interventions, the procedure suite should have state-of-the-art equipment, use fluoroscopy, have experienced staff, and have ability to provide IV sedation and antibiotics if needed.)

Imaging considerations

Keep in mind that routine imaging at the acute stage does not improve outcomes in mechanical neck pain — and may lead to unnecessary or ineffective treatment.^{DOU}

Avoid imaging for patients who do not have signs of serious pathology (see red flags, page 3), unless pain has persisted longer than 6 weeks.

Common questions about imaging tests as part of a referral:

- **Should I order imaging tests as part of a nonsurgical spine specialist referral?**
In most cases, no — unless there are obvious signs of radiculopathy or red flags for serious pathology. Inappropriate imaging can lead to unnecessary radiation and cost.
- **Who should recommend interventions based on imaging tests?** A nonsurgical spine specialist can evaluate imaging to identify which interventions (if any) may be helpful. It is not generally recommended for primary care providers to order interventions directly. However, it may be appropriate for a PCP to order an intervention for established patients who have been helped by a specific procedure in the past, if the same symptoms recur.

Goals of nonsurgical spine specialty care

A nonsurgical spine specialist aims to do the following (see page 10 for further details):

- Identify the pain generator through physical exam, history, and imaging
- Perform or recommend appropriate nonsurgical interventions (e.g., manipulation or manual therapy, local injections, or spinal injections)
- Initiate and encourage a regular aerobic exercise and conditioning program
- Initiate, adjust, and advise on medications
- Expedite care to a surgeon if necessary

Setting patient expectations for nonsurgical specialist treatment

Patients should understand that the specialist evaluation may or may not reveal the cause of their pain and that it does not always result in procedures or a surgery referral. Remind patients that while the nonsurgical spine specialist is evaluating or treating them, they should remain as active as possible.

Further psychosocial evaluation after 6 weeks, if needed

If a patient's pain and/or function have not improved after 6 weeks, and the patient has not yet been evaluated using the *MHI Adult Baseline Packet*, consider administering the packet. See the *MHI Care Process Model* for more information.

► CHRONIC NECK PAIN

Patients with neck pain that does not improve with core treatment or nonsurgical spine specialist treatment — and that interferes with work and/or life activities — will need chronic management.

Pain assessment

- **For patients who have received core neck treatment and nonsurgical specialist treatment without success:** Follow the advice in Intermountain’s *Management of Chronic Non-Cancer Pain Care Process Model* (see sidebar) to assess psychosocial factors, medication-related risks, and other factors that can impact chronic pain management.
- **For patients who present to you with neck pain of 12 weeks or more:** Screen for red flags that may indicate serious pathology (see page 3); start physical therapy. If the patient has not yet been assessed by a nonsurgical spine specialist, refer the patient for evaluation. If nonsurgical spine specialist treatment is not helpful, follow the assessment advice in the *Management of Chronic Non-Cancer Pain CPM* (see sidebar).
- **For patients with cervicogenic headache:** Many patients with posttraumatic neck pain (whiplash/extension injury) have headache. Headaches are usually secondary to C2–C3 facet injury or less commonly C1–C2 or C3–C4 injury. The headache is usually unilateral and starts in the neck. Pain is triggered by neck motion or pressure applied to neck. They can be diagnosed with medial branch blocks and treated with radiofrequency neurotomy.

Psychosocial evaluation

If a patient has not yet been evaluated using the *MHI Adult Baseline Packet*, administer the packet and create a treatment plan for any mental health conditions that are identified, based on their complexity and severity. See the *MHI CPM* for more information about the MHI process and supporting tools.

Patient education and pain management plan

Intermountain’s booklet *Managing Chronic Pain: Reclaiming Your Life* helps patients take an active approach to pain management. The booklet educates patients on proven strategies for chronic pain such as mindfulness meditation,^{ROS} along with medication safety and other topics.

The *Pain Management Plan* that accompanies the *Management of Chronic Non-Cancer Pain CPM* is a shared decision-making tool that documents the patient’s pain management goals, treatments, exercise, and other self-care approaches, and it can help engage patients in self-management. Click the images to open these tool or see page 12 for ordering information.



Medication management

Intermountain’s *Management of Chronic Non-Cancer Pain CPM* contains a table listing chronic pain medications and links to tools for medication management. Key points on medication for chronic neck pain are as follows:

- **Consider NSAIDs and/or acetaminophen as first-line treatment.** While NSAIDs and opioids are both effective for chronic neck pain, NSAIDs should be considered as first-line treatment. Avoid opioids if possible, based on the significant rate of opioid side effects and lack of convincing superiority of opioids over NSAIDs.^{DOU}
- **Monitor carefully.** Effective pain medication management includes regular monitoring of analgesia, adverse effects, aberrant behavior, activity, and affect.^{GOU}
- **Consider sleep.** Assess for sleep disturbance due to pain, and consider treating sleep problems with low-dose tricyclic antidepressants, unless contraindicated.^{UTD3}

✓ KEY RECOMMENDATIONS

- Perform a psychosocial evaluation, provide education, and work together on a pain management plan.
- If patients refer with headaches after neck trauma, evaluate for facet injury.
- Monitor medications carefully and consider NSAIDs and/or acetaminophen as first-line treatment.
- Ensure the patient has been evaluated by a nonsurgical spine specialist.
- Refer to the Chronic Non-cancer Pain CPM for further guidance on chronic pain management.

MANAGEMENT OF CHRONIC NON-CANCER PAIN CPM

Intermountain’s *Management of Chronic Non-Cancer Pain CPM*

provides guidance on assessing chronic pain, managing treatment, and monitoring safety.

The CPM is accompanied by a suite of tools:

- A pain history and coping style assessment
- A pain management plan
- Assessments to screen for risk of pain medication addiction or abuse, with monitoring advice based on risk level
- An opioid therapy agreement (which can be scanned into the electronic medical record) and a medication side effects form

Click the image to open the document, or see page 12 for ordering information.



HEADACHE CARE PROCESS MODEL (CPM)

Intermountain plans to develop a Headache CPM in 2015 (with release Q1 2016). Watch for updates on the *Pain Management A–Z* page of intermountainphysican.org.

KEYS TO ENHANCING COMMUNICATION

Conversational techniques that foster effective communication with patients and families include the following:

- **Open-ended questions** that don't require a yes/no answer. Ex: *"What concerns or questions do you have about this plan?"*
- **Reflecting back the speaker's feelings and perspectives.** Ex: *"It sounds like you're worried about your neck pain keeping you from getting back to work full-time."*
- **Paraphrasing key statements and giving a general summary based on those statements.** Condensing key statements and giving a summary of the situation can clarify content, show you've understood the patient's perspective, and help the patient and family focus on the broader perspective rather than being mired in the details. Ex: *"From what you've said, it sounds like you'd like to..."*
- **Asking for teach-back.** Ask patients to repeat key points (information about benefits and risks, etc.) in their own words. Ex: *"Can you explain back to me the pros and cons of this plan?"*

Considering other treatment options

Patients with neck pain that persists long term — pain that is not helped by nonsurgical spine specialist treatment — should consider treatment beyond pain medication. In discussing treatment options with patients, keep these points in mind:

- **Continue to encourage movement.** Exercise and everyday activity help to preserve function, delay or prevent further disability, and ease pain. Common exercise strategies for neck pain include:
 - Walking and aerobic exercises, which increase baseline activity levels, improve blood flow, and may increase endurance of postural muscles.
 - Stretching, range of motion movements, isometric, and resistive strengthening exercises for the neck and shoulder girdle.^{KAY,SOU} These are likely to be most effective when customized by a physical therapist or physician.
- **Consider a team-based approach.** Functional restoration programs, which provide multidisciplinary team care with a biopsychosocial approach, have been shown to improve function and reduce pain (see the table at left). If a full functional restoration program is not available in your region, consider a team-based approach that incorporates some of the elements of functional restoration (such as using MHI providers and creating plans for consistent communication with physical therapists and other specialists to whom the patient is referred).
- **Take a shared decision-making approach when discussing other treatment options.** This approach helps patients and families weigh the information about a treatment option, clarify their goals and values, and make the decision that's right for them. Key elements of shared decision-making include:
 - Using conversational techniques that enhance communication (see sidebar).
 - Helping patients and families weigh the risk and cost of an option against its potential benefits. See the table on the next page for evidence-based outcomes research on a range of common treatment options patients may consider.
- **If patients want to try a benign, low-cost therapy, supporting this decision may be helpful — even if the research is not conclusive about outcomes.** The sense of self-efficacy that may come from pursuing an option can bring its own benefits in terms of pain and function.
- **If the patient asks about surgery, stress the guidance that a nonsurgical spine specialist can provide.** An evaluation (or repeated evaluation) by a nonsurgical spine specialist may be more helpful than a direct referral to a surgeon. If the specialist feels the patient needs a surgical evaluation, then a referral can be made.

TABLE 3. Treatment options for chronic neck pain: outcomes research

Treatments		Research on outcomes
<input checked="" type="checkbox"/>	Physical therapy (PT)	PT for patients should focus on patient education and therapeutic exercise, with adjunctive use of traction, and manipulation/mobilization techniques. ^{DOU} Emphasize coordination, strengthening, and endurance exercises, postural awareness, and ergonomic counseling.
<input checked="" type="checkbox"/>	Exercise therapy	A systematic review and best evidence analysis found that combined programs (coordination, strength and endurance, range of motion, flexibility, coordination, and supervised qigong) are effective for the management of neck pain. ^{SOU}
<input checked="" type="checkbox"/>	Traction	A randomized clinical trial found that adding mechanical traction to a standard exercise program for patients with signs of cervical radiculopathy lowered self-reported disability and reduced neck and arm pain. These improvements were particularly notable at 6-month and 12-month follow-ups. ^{FRI} (Many insurers may not cover home traction therapy.)
<input checked="" type="checkbox"/>	Injection therapy	Cervical epidural cortisone is indicated for cervical radicular pain. Studies do not clearly support epidural steroids for axial neck pain. Consider other injections to diagnose other pain generators (e.g., facets). ^{DOU}
<input checked="" type="checkbox"/>	Radiofrequency rhizotomy (RF)	The majority of axial neck pain is caused by facet joints. ^{YIN} The best proven procedure to effectively treat the facet joints is radiofrequency rhizotomy, which causes a heat lesion to the small nerves that innervate the facet joints. Before RF is performed, diagnostic anesthetic blocks are performed to diagnose facet pain and predict outcomes of the RF. Evidence supports RF. ^{BOG}
<input checked="" type="checkbox"/>	Team-based programs	Functional restoration programs that integrate medical and psychosocial treatment have been found to improve function and reduce pain in patients with chronic pain. ^{GUZ} If a functional restoration program is not available, consider incorporating as many features of team-based care within your clinic as possible — such as incorporating MHI and planning for consistent communication with physical therapists and other specialists.
<input checked="" type="checkbox"/>	Cognitive behavioral therapy (CBT)	In a randomized trial of CBT versus no CBT in 91 patients with whiplash, those randomly assigned to CBT were more likely to report resolution of pain (23% versus 9%) or improvement of pain symptoms (53% versus 42%) at 3-month follow-up. ^{PAT}
<input type="checkbox"/>	Mobilization/manipulation	With manipulation, risk of stroke or spinal cord injury is <1 in 1,000,000, but stroke and injury do occur. The most beneficial manipulative interventions for patients with mechanical neck pain with or without headaches should be combined with exercise to improve patient satisfaction. ^{APTA}
<input type="checkbox"/>	Surgery for radiculopathy	Radiculopathy: Surgery may relieve otherwise intractable signs and symptoms related to cervical radiculopathy, although no data exist to guide optimal timing of the intervention. ^{CAR}
<input type="checkbox"/>	Trigger point injections	Although widely used, evidence is currently lacking. A single, randomized trial for low back pain showed no difference in pain response between saline injection, anesthetic injection, needle insertion without injection, and vapocoolant spray with acupressure. ^{DOU}
<input type="checkbox"/>	Massage therapy	Additional research is needed in this area of treatment.
<input type="checkbox"/>	Complementary and alternative medicine therapies (CAM)	Evidence is inconclusive regarding the benefits and harms of CAM therapies in patients with pain. While there is insufficient data to support the effects or benefit of CAM treatments; some patients report improvement in function and severity of pain with their use. Additional research is needed in this area of treatment.
<input type="checkbox"/>	Surgery for chronic mechanical neck pain	Surgery is well proven to help radicular pain but less proven to help neck pain.
<input type="checkbox"/>	Acupuncture	No reviews show clear demonstration of effectiveness. A review of outcomes of 14 trials were equally balanced between positive and negative outcomes. Another review found either no effect or negative effect. No major recommending body currently recommends acupuncture for neck pain. ^{DOU}
<input checked="" type="checkbox"/>	TENS	Research shows limited benefits and/or treatment is not recommended in major guidelines.
<input checked="" type="checkbox"/>	Surgery for degenerative changes shown on MRI	Research shows limited benefits and/or treatment is not recommended in major guidelines.
<input checked="" type="checkbox"/>	Immobilization	Cervical collars have little effect on cervical range of motion in healthy adults. Three reviews found inconclusive or no evidence of benefit in neck pain. ^{DOU}
<input checked="" type="checkbox"/>	Therapeutic ultrasound	Good-quality evidence shows no benefit. ^{DOU}

Key to symbols:

= Research shows good outcomes and/or treatment is recommended in major guidelines.

= Research is uncertain on outcomes.

= Research shows limited benefits and/or treatment is not recommended in major guidelines.

► NONSURGICAL SPINE SPECIALIST TREATMENT

The table below describes problems that can generate neck pain, how a nonsurgical spine specialist evaluates for each problem, and treatments that the specialist may consider.

TABLE 4. Nonsurgical spine specialist approach: evaluation and treatment of neck pain

Pain generator	Evaluation	Treatments the specialist may consider
Facet pain	<ul style="list-style-type: none"> • Symptoms: Mechanical neck pain and possible referred pain • Physical exam: Facet tenderness and pain with extension and rotation • Imaging: Not diagnostic; facet degeneration is a common finding 	<ul style="list-style-type: none"> • Physical therapy • Manual therapy treatment • Medical branch blocks and radiofrequency rhizotomy • Cervical facet cortisone injections
Herniated disc with radicular symptoms	<ul style="list-style-type: none"> • Symptoms: Acute and often severe scapular and arm pain, usually worse when at computer, driving, or moving neck • Physical exam: Positive Spurling's test, upper limb tension tests, distraction test; variable numbness, weakness, and loss of DTR • Imaging: MRI 	<ul style="list-style-type: none"> • Education to explain the natural history of this problem (favorable to improvement) • Physical therapy/traction • Epidural cortisone injections • Surgery referral indicated with progressive neurologic deficit, profound weakness, or lack of improvement in 3 months
Degenerative disc: Most likely asymptomatic. Only 16% of neck pain is caused by degenerative disk.	<ul style="list-style-type: none"> • Imaging: Not helpful; disc degeneration is a normal finding 	<ul style="list-style-type: none"> • Physical therapy, per treatment options on <i>page 9</i> • Rarely indicated: Discography, intradiscal procedures, and surgery
Whiplash/extension injury: Causes post-traumatic neck pain and can cause headaches for many patients.	<ul style="list-style-type: none"> • Symptoms: Neck pain, headache • Physical exam: Headache and/or neck pain is triggered by neck motion or pressure applied to neck • Diagnostic injection: Medial branch block to evaluate facet pain 	<ul style="list-style-type: none"> • Conservative treatment with NSAIDs and physical therapy for 6–8 weeks • Physical therapy deep neck flexor exercises • If chronic neck pain or headache persist, consider radiofrequency rhizotomy
Cervicogenic headache	<ul style="list-style-type: none"> • Diagnostic injections: Medial branch block to evaluate for C2 to C3 facet injury (or less commonly, from C1 to C2 or C3 to C4) 	<ul style="list-style-type: none"> • Physical therapy • Radiofrequency rhizotomy • Deep neck flexor exercises

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RESOURCES FOR PROVIDERS

- American Pain Society: www.ampainsoc.org
- American Academy of Pain Management: www.aapainmanage.org
- American Academy of Pain Medicine: www.painmed.org
- Overview of Neck Pain, American Academy of Physical Medicine and Rehabilitation: www.aapmr.org/patients/conditions/msk/spine/Pages/Overview-of-Neck-Pain.aspx

WEB RESOURCES AND BOOKS FOR PATIENTS

Websites:

- Neck Pain Overview on WebMD: www.webmd.com/a-to-z-guides/neck-pain-topic-overview
- American Chronic Pain Association: www.theacpa.org

Books:

- *The Pain Survival Guide: How to Reclaim Your Life (APA Lifetools)*, American Psychological Assn, 2005.
- *Younger Next Year*, Chris Crowley and Henry S. Lodge, MD. Workman, 2007.
- *Younger Next Year for Women*, Chris Crowley and Henry S. Lodge, MD. Workman, 2007.

► SUMMARY OF INTERMOUNTAIN RESOURCES

For providers

To find the tools listed below, go to www.intermountainphysician.org/clinicalprograms, choose Clinical Topics A–Z, and then choose “Pain Management” from the A–Z menu. A Clinical Topic Page (see the example at right) provides access to CPMs and supporting tools. Resources include:

- [*Neck Pain Self History*](#)
- [*Neck Pain Physical Exam*](#)
- [*Spinal MRI Order Guidelines*](#)
- [*Chronic Non-Cancer Pain Care Process Model*](#)
- [*Low Back Pain Care Process Model*](#)
- *Assessment tools and care plans to support the Chronic Pain CPM*



For patients

Clinicians can find and print patient education from the Krames patient education library. Applicable patient education appears in iCentra (based on diagnosis code), or clinicians can access it from the PEN page of intermountain.net or intermountainphysician.org following these directions:

1. Open the Patient Education Library page by typing PEN in your address bar (within the Intermountain network).
2. Click the KRAMES On-Demand button.
3. Type “neck pain” in the search bar. The following HealthSheets should appear in the list as well as associated mental health patient education. You can also search for these specific titles or numbers.
 - Understanding Neck Problems (40033)
 - Neck Problems: Relieving Your Symptoms (40035)
 - Know Your Neck: The Cervical Spine (85973)

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This CPM presents a model of best care based on the best available scientific evidence at the time of publication. It is not a prescription for every physician or every patient, nor does it replace clinical judgment. All statements, protocols, and recommendations herein are viewed as transitory and iterative. Although physicians are encouraged to follow the CPM to help focus on and measure quality, deviations are a means for discovering improvements in patient care and expanding the knowledge base. Send feedback to Timothy Houden, MD, Intermountain Healthcare, Pain Management Services Medical Director, (Timothy.Houden@imail.org).