MedStar Health

Management of Acute Low Back Pain in Adults
Clinical Practice Guideline

These guidelines are provided to assist physicians and other clinicians in making decisions regarding the care of their patients. They are not a substitute for individual judgment brought to each clinical situation by the patient's primary care provider-in collaboration with the patient. As with all clinical reference resources, they reflect the best understanding of the science of medicine at the time of publication but should be used with the clear understanding that continued research may result in new knowledge and recommendations.

General Principles: Acute low back pain in the adult patient is defined as <4 weeks of activity intolerance due to lower back pain and/or back related leg symptoms. Patients who continue to have back pain beyond the acute period (4weeks) have subacute back pain (lasting between 4-12 weeks) and some may go on to develop chronic back pain (lasting >12 weeks). The specific cause often cannot be identified but has a benign course in 90% of patients. Recurrences and functional limitations can be minimized with appropriate exercise and patient education.

Initial Evaluation: A focused medical history and physical exam including general observation of the patient, regional back exam, testing for sciatic nerve tension, neurological screening and straight leg raise can identify the small percentage of patients with serious conditions that require immediate further evaluation. These conditions include infection, malignancy, rheumatologic diseases, neurological disorders, and referred pain from other organ systems.

Red flags: Some guidelines suggest "red flag" symptoms, which may identify patients at risk for a more serious cause of back pain and represent an indication for earlier imaging exams. There are limited data to support the use of most of the red flags as an indication for early imaging. Systematic reviews of studies that used one or more of these indications for imaging found that only a history of cancer has been shown to increase the probability of finding spinal malignancy. Systematic reviews have found that the red flags associated with the highest post-test probability of a vertebral fracture were older age, prolonged use of corticosteroids, severe trauma, and presence of contusion or abrasion.

The clinician should look for "Red Flags" to identify which patients need more aggressive evaluation.

Red Flags	Potential Condition	Preferred Initial Imaging Modality *
• History of cancer • Constitutional symptoms such as unexplained weight loss, fever or chills • Immunosuppression (steroids, HIV, anti-rejection meds) • IV drug abuse • UTI • Prolonged use of steroids • Nocturnal back pain, pain worse when supine	Cancer or Infection	MRI LS spine with and without contrast
• Major trauma, such as motor vehicle accident or fall from height • Minor trauma or even strenuous lifting in older patient or patient with known or suspected osteoporosis • Prolonged use of steroids	Spinal Fracture	X-ray lumbar spine
• Saddle anesthesia • Acute onset of bladder dysfunction (urinary retention or overflow incontinence) • Global or progressive motor weakness in lower limbs	Cauda Equina Syndrome	MRI LS spine without contrast

• Loss of anal sphincter tone or fecal incontinence		

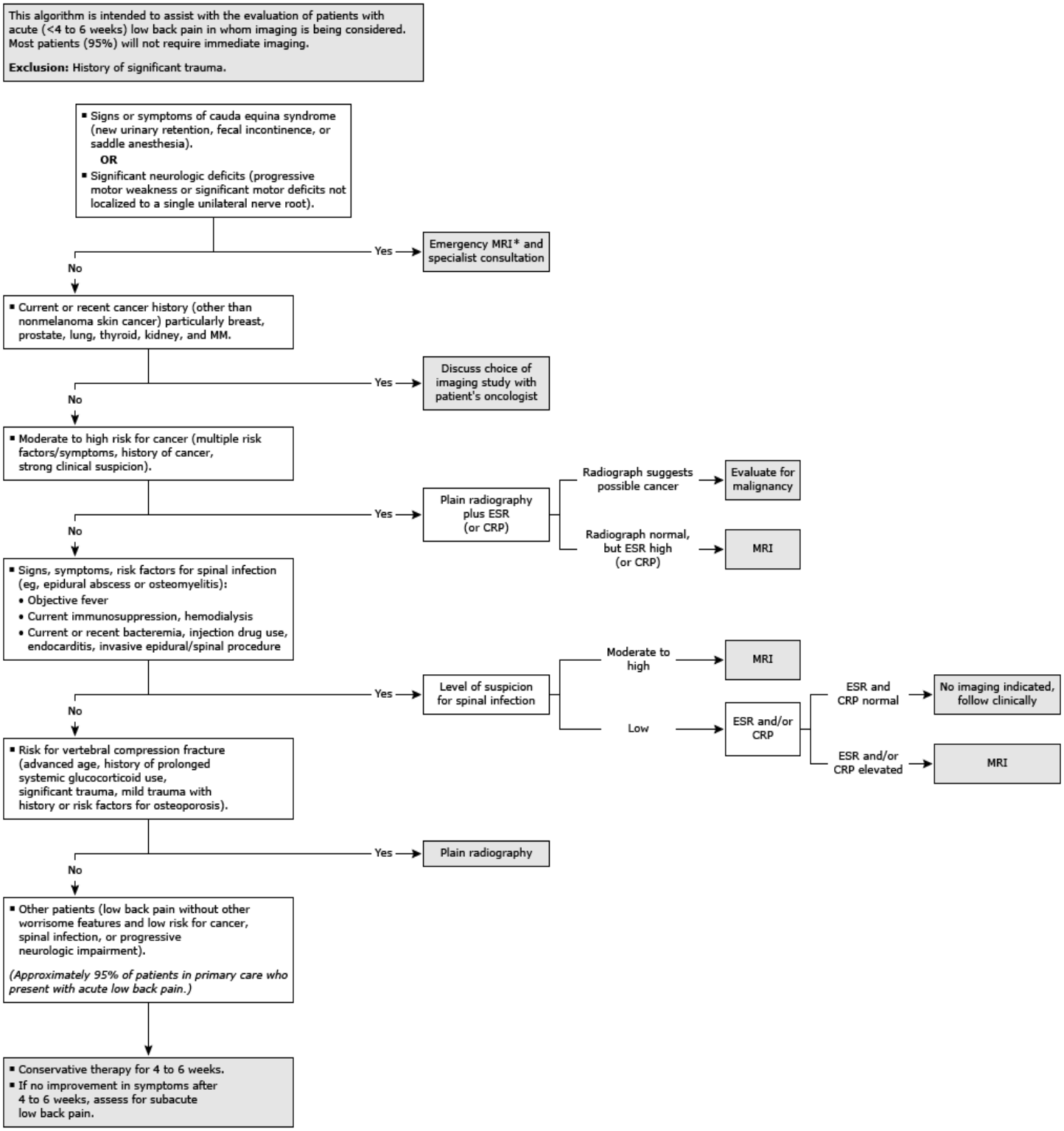
*** American College of Radiology Appropriateness Criteria: https://acsearch.acr.org/docs/69483/Narrative/**

Indications for imaging - Indications for imaging — The majority of patients with low back pain of less than four weeks duration do not require imaging. Most patients who present to primary care settings will have nonspecific pain without associated symptoms and will improve rapidly.
(/pathway/120424?search=acute+low+back+pain&topicRef=7782&source=see_link

Approximately one-quarter of patients 18 to 50 years of age with acute low back pain who underwent imaging exams had no identifiable indication for imaging. Inappropriate lumbar imaging can lead to irrelevant findings and trigger additional costly studies, unneeded treatments, and unwarranted surgical interventions.

Joint guidelines from the American College of Physicians (ACP) and the American Pain Society explicitly recommend that "clinicians should not routinely obtain imaging or other diagnostic tests in patients with nonspecific low back pain" and reserve imaging for patients with severe or progressive neurologic deficits or when serious underlying conditions are suspected based on history and physical examination. Guidelines from the National Institute for Health and Care Excellence (NICE) in the United Kingdom advise clinicians to “not routinely offer imaging in a non-specialist setting for people with low back pain with or without sciatica”. The ACP provides practical advice about when imaging studies should be considered in patients with acute low back pain (table 8), and our recommendations below are consistent, with the exception of imaging for suspected vertebral compression fracture. Avoiding imaging in acute low back pain has been identified as a recommendation in the American Board of Internal Medicine's "Choosing Wisely" campaign.

See algorithm below for Acute low back pain: Consideration for imaging:



MRI: magnetic resonance imaging; MM: multiple myeloma; ESR: erythrocyte sedimentation rate; CRP: C-reactive protein; CT: computed tomography.

* Lumbar spine MRI without contrast is usually appropriate. If there is concern for cancer or infection or if there is history of prior surgery at the site, MRI without and with contrast is recommended. CT with contrast is the alternative exam if MRI is contraindicated.

Graphic 103713 Version 8.0

Initial Approval Date and Reviews:	Most Recent Revision and Approval Date:	Next Scheduled Review Date:
Nov. 1997, Revised 5.04, Reviewed 8.07 , 8. 2010, 8.2012, 8.2014, 7 2016 . 7 2018, 7. 2020; 7. 2022 Ambulatory Best Practice Committee	July 2022	July 2024 Ambulatory Quality Best Practice

Laboratory Tests: Laboratory tests are generally not necessary during the initial evaluation; however, they can be useful when infection or malignancy is considered a possible cause and may include a CBC, ESR, PSA, alkaline phosphatase, blood culture, and/or PPD. The HLA-B27 assay is positive in 90% of patients with ankylosing spondylitis but should not be routinely drawn.

Special Studies:

1. Plain-film radiography is rarely useful in the initial evaluation of patients with acute-onset low back pain.
2. MRI and CT scanning have been found to demonstrate abnormalities in "normal" asymptomatic people. Thus, positive findings in patients with back pain are frequently of questionable clinical significance. MRI or CT studies should be considered in patients with worsening neurological deficits or a suspected systemic cause of back pain such as infection or neoplasm. These imaging studies may also be appropriate when referral for surgery is a possibility.
3. Bone scintigraphy can be useful when radiographs of the spine are normal, but the clinical findings are suspicious for osteomyelitis, bony neoplasm, or occult fracture if MRI and/or CT cannot or should not be performed.
4. Electrodiagnostic studies such as EMG/NCS have only a limited role in the evaluation of acute low back pain and are most useful in differentiating peripheral neuropathy from radiculopathy or myopathy. If timed appropriately, these studies are helpful in confirming the working diagnosis and identifying the presence or absence of previous injury. They are also useful in localizing a lesion, determining the extent of injury, predicting the course of recovery, and determining whether structural abnormalities (as seen on radiographic studies) are of functional significance.

Management

Key Recommendations

- Nonpharmacologic treatment, including superficial heat, massage, acupuncture, or spinal manipulation, should be used initially for most patients with acute or subacute low back pain, as they will improve over time regardless of treatment.
- When pharmacologic treatment is desired, nonsteroidal anti-inflammatory drugs (NSAIDs) or skeletal muscle relaxants should be used.
- Nonpharmacologic treatment, including exercise, multidisciplinary rehabilitation, acupuncture, mindfulness-based stress reduction, tai chi, yoga, motor control exercise, progressive relaxation, biofeedback, low-level laser therapy, cognitive behavioral therapy, or spinal manipulation, should be used initially for most patients who have chronic low back pain.
- For patients who have chronic low back pain and do not respond to nonpharmacologic therapy, NSAIDs should be used. Tramadol or duloxetine should be considered for those patients who do not respond to or do not tolerate NSAIDs. Opioids should only be considered if other treatments are unsuccessful and when the potential benefits outweigh the risks for an individual patient. See full recommendation for further details.

1. Education and Reassurance. Patients should be informed that a rapid recovery is likely, but also the likelihood of a recurrence of symptoms based on the natural history of low back pain. They should be told how to control their symptoms during this and future episodes and the lack of need for tests to evaluate acute low back pain symptoms during the initial period of symptoms. Psychosocial obstacles to recovery including depression, low job satisfaction, and substance abuse may exist and should be explored.

2. Pharmacologic therapy If no medical contraindications are present, a 2–4-week course of NSAIDS at anti-inflammatory levels is suggested. Recent evidence shows no difference between acetaminophen and placebo in pain intensity or improvement, making NSAIDs preferred unless contraindications exist. Skeletal muscle relaxants have also been shown to improve pain though are sedating. They are generally prescribed in combination with NSAIDS, often at bedtime only due to sedating side effects, and should be used with caution if at all in the elderly. Oral systemic steroids may be considered for use in acute lumbar radiculopathy, though data in support are limited and conflicting. Typical doses are prednisone 60-80 mg daily for 5-7 days, tapered over the next 1-2 weeks.

For relief of severe, acute pain refractory to other treatments, short-term use of a narcotic may be considered. The need for prolonged narcotic therapy should prompt a reevaluation of the etiology of a patient's back pain and a consideration for addition of a muscle relaxant (caution with use in patients over the age of 65). When narcotic pain medication is considered and the patient is at risk for addiction or has reached 30 days of use, the MedStar Policy on Narcotics Prescribing should be consulted, and the Patient Contract should be utilized.

There is no evidence to support the use of antidepressants or topical lidocaine in the management of acute low back pain. There is low quality evidence for the use of topical capsaicin in acute low back pain.

3. Activity modification rather than bed rest is recommended for patients with non-neurogenic pain wherein the patient avoids painful arcs of motion and tasks that exacerbate the back pain. Exercise programs that facilitate weight loss, trunk strengthening, and the stretching of musculotendinous structures appear to be most helpful in alleviating low back pain. Typically, back exercises are initiated after pain improves. Aggressive exercise programs have been shown to reduce the need for surgical intervention.

4. Nonpharmacologic therapy including superficial heat, massage, acupuncture, and spinal manipulation are useful for relieving symptoms in the acute phase after the onset of low back pain. There is no convincing evidence for lumbar traction, lumbar supports, cold packs, Pilates, tai chi, yoga, or TENS.

5. Surgical evaluation is indicated in patients with worsening neurological deficits or intractable pain that is resistant to conservative treatment. Studies examining the outcomes of conservative and surgical treatment of back pain have revealed no clear advantage for surgery. **Patients with suspected cauda equina syndrome or cord compression (characterized by saddle anesthesia, sensorimotor changes in the legs and urinary retention) require immediate neuroimaging and neurosurgical investigation.**

If no significant improvement in symptoms is noted after 4-6 weeks of treatment, the clinician should reassess the treatment plan. To avoid misdiagnosis and unnecessary or inappropriate treatments, the physician may then want to refer the patient to a spine specialist.

A small percentage of patients with acute back pain go on to develop persistent disabling low back pain. Findings that may predict this include maladaptive pain coping behaviors, nonorganic signs, functional impairment, general health status and presence of psychiatric comorbidities.

Summary of the American College of Physicians Best Practice Advice: Diagnostic Imaging for Low Back Pain	
Disease or condition	Imaging for low back pain
Target audience	Internists, family physicians, and other clinicians
Target patient population	Adults with low back pain
Interventions	Radiography Computed tomography Magnetic resonance imaging
Indications for diagnostic imaging	Immediate imaging is recommended in patients with acute low back pain who have major risk factors for cancer, risk factors for spinal infection, risk factors for or signs of the cauda equina syndrome, or severe or progressive neurologic deficits Imaging after a trial of therapy is recommended in patients with minor risk factors for cancer, risk factors for inflammatory back disease, risk factors for vertebral compression fracture, signs or symptoms of radiculopathy, or risk factors for or symptoms of symptomatic spinal stenosis Repeated imaging is only recommended in patients with new or changed low back symptoms
Evidence that expanding imaging to patients without these indications does not improve outcomes	Randomized trials of routine imaging versus usual care without routine imaging in patients without indications for diagnostic imaging suggest no clinically meaningful benefits on outcomes related to pain, function, quality of life, or mental health Other supporting evidence includes the weak correlation between most imaging findings and symptoms, the favorable natural history of acute low back pain with or without imaging, the low prevalence of serious or specific underlying conditions, and unclear effects of imaging on treatment decisions
Harms of unnecessary imaging	Radiation exposure (for lumbar radiography and computed tomography) Labeling Hypersensitivity reactions and contrast nephropathy (for iodinated contrast with computed tomography) Potential association with subsequent unnecessary, invasive, and expensive procedures
Approaches to overcome barriers to evidence-based practice	Patient expectations or preferences for routine imaging: Use talking points based on evidence-based guidelines to aid in patient education Time constraints: Use evidence-based online or print education material to supplement face-to-face education Clinician uncertainty: Recognize the low likelihood of serious conditions in the absence of clinical risk factors and the evidence that shows no benefit associated with routine imaging Clinician incentives based on patient satisfaction: Advocate for incentives that are based on providing appropriate care
Talking points for clinicians when discussing low back pain imaging with patients	Risk factor assessment can almost always identify patients who require imaging The prevalence of serious underlying conditions is low in patients without risk factors The natural history of acute low back pain is quite favorable, but patients require reevaluation if they are not better after about 1 month Routine imaging does not improve clinical outcomes but increases costs and may lead to potentially unnecessary invasive treatments, such as surgery Imaging abnormalities are extremely common, especially in older adults, but most are poorly correlated with symptoms In most cases, treatment plans do not change after imaging studies Back imaging is associated with radiation exposure, which can increase the risk for cancer in the case of lumbar radiography and computed tomography

Retrieved from http://annals.org/data/Journals/AIM/20224/8FF1.jpeg

Summary of the American College of Physicians Guideline on Noninvasive Treatments for Acute Low Back Pain

Disease/Condition	Acute low back pain
Target Audience	All Clinicians
Target Patient Population	Adults with acute low back pain
Interventions Evaluated	Pharmacologic interventions: NSAIDS, nonopioid analgesics, opioid analgesics, tramadol and tapentadol, antidepressants, SMR (skeletal muscle relaxants), benzodiazepines, corticosteroids, antiepileptic drugs Nonpharmacologic interventions: interdisciplinary or multicomponent rehabilitation; psychological therapies; exercise and related interventions, such as yoga or tai chi; complementary and alternative medicine therapies, including spinal manipulation, acupuncture, and massage; passive physical modalities, such as heat, cold, ultrasound, transcutaneous electrical nerve stimulation, electrical muscle stimulation, interferential therapy, short-wave diathermy, traction, LLLT (low level laser therapy), lumbar supports/braces
Outcomes Evaluated	Pain, function, health-related quality of life, work disability/return to work, global improvement, number of back pain episodes or time between episodes, patient satisfaction, adverse effects
Benefits	Pharmacologic: NSAIDS: Improved pain and function (small effect) SMRs: Improved pain (small effect) Nonpharmacologic: Heat wrap: improved pain and function (moderate effect) Massage: improved pain and function (at 1 but not 5 weeks) (small to moderate effect) Acupuncture: improved pain (small effect) Spinal manipulation: Improved function (small effect)
Harms	Generally, poorly reported Pharmacologic: NSAIDs: Increased adverse effects compared with placebo and acetaminophen (OX-2-selective NSAIDs decreased risk for adverse effects compared with traditional NSAIDS) Opioids: nausea, dizziness, constipation, vomiting, somnolence, and dry mouth SMRs: Increased risk for any adverse event and central nervous system adverse events (mostly sedation) Benzodiazepines: somnolence, fatigue, lightheadedness Antidepressants: increased risk for any adverse event Nonpharmacologic: Poorly reported, but no increase in serious adverse effects
Recommendations	Given that most patients with acute or subacute low back pain improve over time regardless of treatment, clinicians and patients should select nonpharmacologic treatment with superficial heat (moderate-quality evidence), massage, acupuncture, or spinal manipulation (low-quality evidence). If pharmacologic treatment is desired, clinicians and patients should select nonsteroidal anti-inflammatory drugs or skeletal muscle relaxants (moderate-quality evidence). (Grade: strong recommendation)
High-Value Care	Clinicians should reassure patients that acute or subacute low back pain usually improves over time regardless of treatment and should avoid prescribing costly and potentially harmful treatments.

Clinical Considerations	Clinicians should inform patients with acute or subacute low back pain of the generally very favorable outcome. Thus, patients can avoid potentially harmful and costly tests and treatments. Clinicians should advise patients with acute or subacute low back pain to remain active as tolerated. Improvements in pain and function due to pharmacologic and nonpharmacologic interventions were small and often showed no clear differences compared with controls. Few differences in recommended therapies were found when they were studied in head-to-head trials. Therefore, clinicians should base treatment recommendations on patient preferences that also minimize harms and costs.

Adapted from http://annals.org/aim/fullarticle/2603228/noninvasive-treatments-acute-subacute-chronic-low-back-pain-clinical-practice

In addition to the ACP best practice guideline, multiple other specialty societies have submitted recommendations on the evaluation and management of low back pain to the ABIM Choosing Wisely initiative. Consistent themes are the avoidance of unnecessary imaging, continuing activity as tolerated, and minimizing the use of narcotic analgesics.

Patient Education:
http://www.choosingwisely.org/patient-resources/low-back-pain/
http://www.uptodate.com/contents/low-back-pain-in-adults-the-basics?source=see_link
http://orthoinfo.org/PDFs/Rehab_Spine_5.pdf

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