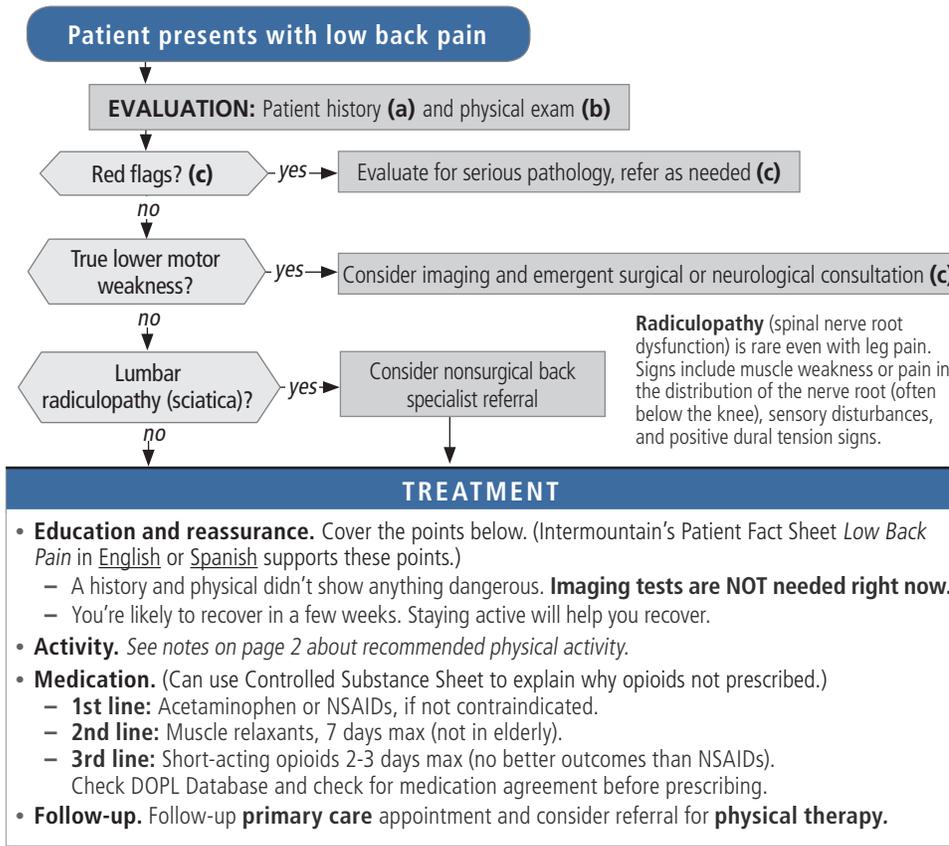




# DIAGNOSIS AND TREATMENT OF Low Back Pain in the ED

This care process model (CPM), created by Intermountain Healthcare’s Pain Management Service, provides guidance for diagnosis and treatment of low back pain in the emergency department. **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.**



## ALGORITHM NOTES

### (a) Patient history:

- Description of current pain, time of onset, how pain responds to positioning
- Previous back history, tests and treatments
- Systemic disease (osteoporosis, cancer, arthritis, infection, etc.)
- Neurological, bowel, & bladder symptoms

*Note: Subacute (>6 weeks) and chronic (>12 weeks) back pain require special consideration based on previous history and evaluations. See back for a suggested approach for acute exacerbation of previously diagnosed chronic back pain.*

### (b) Physical exam:

- Motor weakness and reflex changes
- Sensory deficit (perineal or lower extremity)
- Consider rectal exam
- Dural tension (straight leg raise, prone femoral nerve test)
- Upper motor neuron findings
- Localized spinal tenderness
- Hip examination

*Note: If exam shows severe, progressive neurologic deficits, consider epidural compression and other appropriate diagnostics.*

### (c) See TABLE 1 below for “red flag” signs of serious pathology and suggested evaluation/referrals.

**TABLE 1: RED FLAGS FOR SERIOUS PATHOLOGY — EVALUATION AND REFERRAL**

| Suspected condition and signs  | Evaluation  | Referral  |
|--|---|---|
| <b>Suspected cauda equina syndrome:</b> new bowel or bladder dysfunction; perineal numbness / saddle anesthesia; persistent/increasing lower motor neuron weakness<br><b>Myelopathy/upper motor neuron changes:</b> new-onset Babinski or sustained clonus; new onset gait or balance abnormalities; upper motor neuron weakness | <ul style="list-style-type: none"> <li>• For suspected cauda equina: spinal MRI</li> <li>• For myelopathy/upper motor neuron changes: MRI or CT, spine or brain</li> <li>• If recent spinal injection, surgery, or anticoagulation, consider epidural hematoma</li> </ul> | Emergent consultation with ortho/neuro spine surgeon.   |
| <b>Recent trauma with suspected spinal fracture</b>  | <ul style="list-style-type: none"> <li>• X-ray (3 views); consider CT if x-ray is nondiagnostic</li> </ul>  | Urgent consultation with ortho/neuro spine surgeon if imaging reveals fracture.                 |
| <b>Suspected compression fracture:</b> osteoporosis or osteoporosis risk   | <ul style="list-style-type: none"> <li>• X-ray (3 views): repeat in 2 weeks if suspicion high</li> <li>• Consider MRI if suspicion high</li> </ul>  | If pain controlled and able to be discharged, referral to nonsurgical back specialist.          |
| <b>Suspected cancer:</b> History of cancer, multiple cancer risk factors, or strong clinical suspicion   | <ul style="list-style-type: none"> <li>• CBC, ESR, CRP</li> <li>• X-ray; if x-ray is nondiagnostic but strong suspicion remains, consider urgent MRI with gadolinium</li> </ul>   | Urgent referral to oncologist.  |
| <b>Suspected infection:</b> immunocompromised patient, UTI, IV drug use, recent spinal procedure, or fever/chills in addition to pain with rest or at night  | <ul style="list-style-type: none"> <li>• CBC, ESR, CRP</li> <li>• Consider MRI with gadolinium or bone scan</li> </ul>  | Emergent consultation with infectious disease specialist and spine surgeon. Initiate treatment. |
| <b>Suspected autoimmune disease/polyarthritis:</b> redness/swelling in joints, deformation of joints, extended morning stiffness, recent history (within 6 months) of chlamydia, etc.  | <ul style="list-style-type: none"> <li>• CBC, ESR, CRP (RF, anti-CCP, HLA B27 with tight outpatient follow-up)</li> <li>• X-ray</li> </ul>  | Referral to rheumatologist.   |
| <b>CONSIDER other emergent non-spinal causes:</b> AAA, aortic dissection, pyelonephritis, psoas abscess, etc.  | <ul style="list-style-type: none"> <li>• Labs and imaging as appropriate for other non-spinal cause</li> </ul>  | Referral as appropriate, depending on non-spinal cause.   |

### CHRONIC LBP WITH AN ACUTE EXACERBATION

For chronic low back pain patients with an acute flare-up:

- **Refer to a nonsurgical back specialist** (anesthesia or neurology with pain subspecialty, physical therapy, or PM&R) if possible.
- Check for a **medication agreement**.
- **Avoid/limit opioids**. Give patient the Controlled Substance Sheet.

### REFERENCES

- Airaksinen O, Brox JJ, Cedraschi C; COST B13 Working Group on Guidelines for Chronic Low Back Pain. Chapter 4. European guidelines for the management of chronic nonspecific low back pain. *Eur Spine J*. 2006;15 Suppl 2:S192-300. Accessed Dec. 5, 2012.
- Institute for Clinical Systems Improvement (ICSI). Low Back Pain, Adult Acute and Subacute (Guideline). [http://www.icsi.org/guidelines\\_and\\_more/gl\\_os\\_prot/musculo-skeletal/low\\_back\\_pain/low\\_back\\_pain\\_adult\\_5.html](http://www.icsi.org/guidelines_and_more/gl_os_prot/musculo-skeletal/low_back_pain/low_back_pain_adult_5.html). Published January 2012. Accessed Dec. 5, 2012.
- Koes BW, van Tulder M, Lin CW, Macedo LG, McAuley J, Maher C. An updated overview of clinical guidelines for the management of non-specific low back pain in primary care. *Eur Spine J*. 2010 Dec;19(12):2075-94. Accessed Dec. 5, 2012.
- National Institute for Health and Clinical Excellence (NICE). Early management of persistent non-specific low back pain (Guideline). <http://www.nice.org.uk/cg88>. Published May 2009. Accessed Dec. 5, 2012.

### ► Key Points:

- **Imaging is NOT generally needed to diagnose acute low back pain (LBP)**. Imaging tests can lead to expensive, unnecessary interventions. If there are no “red flags” (signs of serious pathology or injury), avoid imaging tests.
- **In most cases, red flags can be identified through a patient history and physical exam**. Page 1 describes suggested elements of the history and exam, and red flags to watch for.
- **For most LBP, conservative treatment and self-care is adequate and effective**. The core treatment for acute LBP includes education and reassurance, avoidance of bed rest, and a short course of medications.
- **Recommend everyday activity and exercise**. Recommend exercise and everyday activity. Common exercise strategies for low back pain include:
  - Walking and aerobic exercises, which increase baseline physical activity levels, improve blood flow, and may increase endurance of postural muscles
  - Core strengthening exercises, which focus on abdominal, paraspinal, gluteal, diaphragm, and pelvic floor muscles to foster lumbar stability
  - End-range flexion/extension stretches with repeated movements (such as the McKenzie method) — these are likely to be most effective when customized by a physical therapist or physician for each patient
  - Yoga, which has been proven effective for pain management
  - Aquatic exercise, which may be preferred by some patients, as warm water can enhance flexibility and support movement
- **Unless contraindicated, acetaminophen and NSAIDs are first-line pain medications**. Opioids have been shown to have no better outcomes than NSAIDs in low back pain, and have additional side effects.
- **Consider referral for physical therapy**. Early physical therapy can decrease the likelihood of subsequent back surgery, injections, or frequent LBP-related physician visits.
- **Other interventions (injection therapy, etc.) should be delayed** until after conservative treatments and time have failed.

### ► Resources:

- **Low back pain self-history form**. This form includes pain intensity/type, onset, what improves pain, back history (including tests & treatments), systemic disease, neurological symptoms, and bowel/bladder symptoms.
- **Low back pain physical exam form or HELP2 hot text**. This form includes motor weakness and reflex changes, sensory changes, dural tension, upper motor neuron findings. HELP2 hot text for this exam can be imported from user Wayne Cannon.
- **Low back pain patient fact sheet**. This fact sheet explains why imaging is rarely needed with acute low back pain, encourages patients to keep moving, and addresses other common questions and myths about low back pain.
- **Controlled substance sheet**. This sheet is currently under development for system-wide use; this sheet provides ED-specific information on controlled substances.