JAMA Clinical Guidelines Synopsis

Treatment of Low Back Pain

Hannah C. Wenger, MD; Adam S. Cifu, MD

GUIDELINE TITLE Noninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain

DEVELOPER American College of Physicians (ACP)

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PRIOR VERSION October 2, 2007

FUNDING SOURCE ACP, Agency for Healthcare Research and Quality (AHRQ)

TARGET POPULATION Patients aged 18 years or older with acute, subacute, or chronic low back pain

MAJOR RECOMMENDATIONS

- For acute or subacute low back pain (LBP; lasting <4 weeks or 4-12 weeks, respectively), superficial heat, massage, acupuncture, or spinal manipulation are recommended as first-line therapy (strong recommendation, low- to moderate-quality evidence).
- Nonsteroidal anti-inflammatory drugs (NSAIDs) or skeletal muscle relaxants can be offered if patients request pharmacologic treatment for acute or subacute LBP (strong recommendation, moderate-quality evidence).
- For chronic LBP (lasting >12 weeks), a range of nonpharmacologic therapies should be used initially (strong recommendation, low- to moderate-quality evidence).
- If nonpharmacologic therapy is ineffective for chronic LBP, NSAIDs (first line) or tramadol or duloxetine (second line) should be considered (weak recommendation, moderate-quality evidence).
- Clinicians should consider opioids only when the aforementioned treatments have failed and after consideration of their risks and benefits (weak recommendation, moderate-quality evidence).

Summary of the Clinical Problem

Low back pain is among the most common symptoms seen in primary care clinics.[1] The management of LBP depends on its etiology, duration, presence of radiculopathy, and radiologic or physical examination findings.[2] Most episodes of LBP are acute (lasting <4 weeks), with no clearly identifiable underlying cause.[3] Low back pain is considered subacute if it persists for 4 to 12 weeks and chronic if it lasts longer than 12 weeks.[2] Because non–evidence-based management of LBP is associated with medical overuse and high health care expenditures, clinical practice guidelines have the potential to reduce costs and encourage value-based medical care.[4,5]

Characteristics of the Guideline Source

This guideline was developed by the ACP's Clinical Guidelines Committee (CGC) as an update of a 2007 joint specialty guideline by the ACP and the American Pain Society (**Table**).[6] The CGC is composed of internists who specialize in primary care, health care administration, and medical and health services research. This committee oversees the development and evaluation of evidence-based guidelines published by the ACP. Group members completed a disclosure of financial and intellectual interests prior to discussing this guideline. This information is publicly available on the ACP website. Conflicts were managed within the committee, and members recused themselves from voting on guideline recommendations as needed.

The current recommendations were developed from systematic reviews funded by the AHRQ. They were evaluated using the ACP's guideline grading system, which qualifies recommendations as strong or weak (if benefits clearly outweigh harms or there is close balance between benefits and harms, respectively) and qualifies evidence as low, moderate, or high based on type and methods of included studies.[7] After evaluation, the guideline underwent a peer review process through the ACP's journal, *Annals of Internal Medicine*, as well as posting online for commentary by other ACP leadership.

Evidence Base

The ACP's updated recommendations for noninvasive treatment of LBP were based on 3 systematic reviews, 2 performed by the ACP as part of guideline development and a third published by the AHRQ. The ACP reviews included 46 publications on pharmacologic and 114 publications on nonpharmacologic interventions, and the AHRQ review considered 156 publications.[8-10] The study population included adults aged 18 years or older with acute, subacute, or chronic nonradicular LBP, radicular LBP, or symptomatic spinal stenosis. Multiple clinical outcomes were evaluated, with pain and back-specific function being most common. The magnitude of therapeutic benefit was defined as small, moderate, or large, outlined in detail in the

Table. Guideline Rating

Standard	Rating
1. Establishing transparency	Good
2. Management of conflict of interest in the guideline development group	Good
3. Guideline development group composition	Good
4. Clinical practice guideline–systematic review intersection	Good
5. Establishing evidence foundations and rating strength for each of the guideline recommendations	Good
6. Articulation of recommendations	Good
7. External review	Good
8. Updating	Good
9. Implementation issues	Good

guideline.[1] Other outcomes included number or frequency of LBP episodes, quality of life, disability, return to work, global improvement, patient satisfaction, and adverse events.

Superficial heat, massage, acupuncture, and spinal manipulation had small to moderate effects on pain and function in acute and subacute nonradicular LBP (low- to moderate-quality evidence). Exercise, psychological therapies, multidisciplinary rehabilitation (physical plus psychological therapies), acupuncture, massage, spinal manipulation, and low-level laser therapy had small to moderate effects on pain and function for chronic nonradicular LBP (low- to moderate-quality evidence). Other physical modes including ultrasound, electrical nerve stimulation, lumbar supports, and taping were found to provide no benefit (low-quality evidence). Interventions were compared with sham therapy, no therapy, or each other.

Pharmacologic therapy was evaluated in placebo-controlled trials. For acute and subacute nonradicular LBP, NSAIDs and skeletal muscle relaxants had small effects on pain (moderate-quality evidence) and NSAIDs had a small effect on function (low-quality evidence). Systemic steroids had no effect on acute and subacute LBP (low-quality evidence). Acetaminophen did not improve pain or function vs placebo or pain vs NSAIDs (low-quality evidence).

For chronic LBP, NSAIDs had small to moderate effects on pain and either no or only small effects on function (low- to moderate-quality evidence). Tramadol had a moderate effect on pain and small effect on function (moderate-quality evidence), while other opioids had a small effect on short-term pain and function (moderate-quality evidence). The serotonin-norepinephrine reuptake inhibitor duloxetine offered a small improvement in pain and function (moderate-quality evidence). No benefit was found with tricyclic antidepressants or selective serotonin reuptake inhibitors (low- to moderate-quality evidence).

Benefits and Harms

Because acute and subacute LBP is usually self-limited, the potential harms of any therapy, especially one with minor benefits, must be carefully considered. A nonpharmacologic approach risks few adverse effects. As such, the guideline encourages early referral for interventions like physical therapy. Commonly used medications are associated with adverse effects, such as gastrointestinal and renal injury with NSAIDs and sedation with skeletal muscle relaxants. This guideline comments on short-term harms of opioid use, namely nausea, constipation, and somnolence. The risk of opioid addiction, abuse, and overdose are not discussed.

Related guidelines and other resources

Chou R, et al. Interventional therapies, surgery, and interdisciplinary rehabilitation for low back pain: an evidence-based clinical practice guideline from the American Pain Society. *Spine*. 2009;34(10):1066-77.

Delitto A, et al. Low back pain: clinical practice guidelines linked to the International Classification of Functioning, Disability, and Health from the Orthopaedic Section of the American Physical Therapy Association. *J Orthop Sports Phys Ther*. 2012;42(4):A1-A57.

Discussion

This guideline provides a pragmatic approach to treating LBP stratified by symptom duration. Among the many noninvasive treatments considered, no option shows a large benefit for pain and back-specific function. Even less can be said of therapeutic effects on other clinical outcomes like reduction in disability and improvement in quality of life. Because acetaminophen is no longer recommended for treatment of acute or subacute LBP, the only potentially effective pharmacologic agents are NSAIDs and skeletal muscle relaxants. Opioids offer moderate short-term benefit for chronic LBP, but the guideline cautions against their use.

Areas in Need of Future Study or Ongoing Research

The potential benefit of combining various pharmacologic and nonpharmacologic therapies is unknown. This guideline did not comment on several commonly used LBP treatments such as transdermally delivered medications (eg, lidocaine patches, topical NSAIDs), antiepileptics (eg, topiramate, pregabalin, gabapentin), and epidural steroid injections. More data on these therapy modes are needed. There is also a paucity of research regarding the benefits and risks of opioids for treating LBP. There are insufficient data to make recommendations about radicular pain and symptomatic spinal stenosis. Most notably, additional evidence on patient-oriented outcomes (eg, quality of life, disability, and return to work) is important.

ARTICLE INFORMATION

Author Affiliations: University of Chicago, Chicago, Illinois.

Corresponding Author: Adam S. Cifu, MD, University of Chicago, 5841 S Maryland Ave, MC 3051, Chicago, IL 60637 (adamcifu@uchicago.edu).

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Conflict of Interest Disclosures: All authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest and none were reported.

REFERENCES

1. Centers for Disease Control and Prevention. *National Ambulatory Medical Care Survey*. https://www.cdc.gov/nchs/data/ahcd/namcs_summary/2010_namcs_web_tables.pdf. Accessed May 22, 2017.

2. Qaseem A, Wilt TJ, McLean RM, Forciea MA; Clinical Guidelines Committee of the American College of Physicians. Noninvasive treatments for acute, subacute, and chronic low back pain: a clinical practice guideline from the American College of Physicians. *Ann Intern Med*. 2017;166(7):514-530.

3. Deyo RA, Weinstein JN. Low back pain. *N Engl J Med*. 2001;344(5):363-370.

4. Dieleman JL, Baral R, Birger M, et al. US spending on personal health care and public health, 1996-2013. *JAMA*. 2016;316(24):2627-2646.

5. Mafi JN, McCarthy EP, Davis RB, Landon BE. Worsening trends in the management and treatment of back pain. *JAMA Intern Med*. 2013;173(17):1573-1581.

6. Chou R, Qaseem A, Snow V, et al; Clinical Efficacy Assessment Subcommittee of the American College of Physicians; American College of Physicians; American Pain Society Low Back Pain Guidelines Panel. Diagnosis and treatment of low back pain: a joint clinical practice guideline from the American College of Physicians and the American Pain Society. *Ann Intern Med*. 2007;147(7):478-491.

7. Qaseem A, Snow V, Owens DK, Shekelle P; Clinical Guidelines Committee of the American College of Physicians. The development of clinical practice guidelines and guidance statements of the American College of Physicians: summary of methods. *Ann Intern Med*. 2010;153(3):194-199.

8. Chou R, Deyo R, Friedly J, et al. Systemic pharmacologic therapies for low back pain: a systematic review for an American College of Physicians clinical practice guideline. *Ann Intern Med*. 2017;166(7):480-492.

9. Chou R, Deyo R, Friedly J, et al. Nonpharmacologic therapies for low back pain: a systematic review for an American College of Physicians clinical practice guideline. *Ann Intern Med*. 2017;166(7):493-505.

10. Chou R, et al. *Noninvasive Treatments for Low Back Pain*. Comparative effectiveness review 169. http://www.effectivehealthcare.ahrq.gov/reports/final.cfm Accessed May 1, 2017.