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VA/DoD Clinical Practice Guideline: Diagnosis and Treatment of Low Back Pain

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DESCRIPTION: In September 2017, the U.S. Department of Veterans Affairs (VA) and U.S. Department of Defense (DoD) approved the joint Clinical Practice Guideline (CPG) for Diagnosis and Management of Low Back Pain. This CPG was intended to provide healthcare providers a framework by which to evaluate, treat, and manage patients with low back pain (LBP).

METHODS: The VA/DoD Evidence-Based Practice Work Group convened a joint VA/DoD guideline development effort that included a multidisciplinary panel of practicing clinician stakeholders and conformed to the Institute of Medicine's tenets for trustworthy clinical practice guidelines. The guideline panel developed key questions in collaboration with the ECRI Institute, which systematically searched and evaluated the literature through September 2016, developed an algorithm, and rated recommendations by using the GRADE (Grading of Recommendations Assessment, Development and Evaluation) system. A patient focus group was also convened to ensure patient values and perspectives were considered when formulating preferences and shared decision making in the guideline.

RECOMMENDATIONS: The VA/DOD LBP CPG provides evidence-based recommendations for the diagnostic approach, education and self-care, non-pharmacologic and non-invasive therapy, pharmacologic therapy, dietary supplements, non-surgical invasive therapy, and team approach to treatment of low back pain.

KEY WORDS: acute low back pain; chronic back pain; sciatica; radiculopathy; Veteran; military; lumbago.

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INTRODUCTION

Low back pain (LBP) is one of the most frequently experienced medical conditions in the general population, with up to 84% of adults in the United States (U.S.) experiencing LBP at some point in their lives.[1] In 2010, of all diseases and injuries contributing to disability-adjusted life years in the U.S., LBP was ranked third.[2]

In 2012, approximately 27.5% of adults 18 years and older in the U.S. reported experiencing LBP in the last 3 months.[3] More than two-thirds of pregnant women experience LBP and symptoms typically increase with advancing pregnancy[4]; however, pregnancy-related LBP often resolves itself in the post-partum period and may require specialist care when LBP persists or red flags are present.

In a study of U.S. healthcare costs from 1996 through 2013, spending related to LBP and neck pain was the third highest out of 155 conditions. In 2013, the estimated spending related to LBP and neck pain was $87.6 billion, an increase of $57.2 billion over the past 18 years.[5]

The National Institutes of Health 2014 National Health Interview Survey provided prevalence estimates of common pain conditions in Veterans and the non-Veteran population in the U.S. About 32.8% of Veterans reported significant back pain in the prior 3 months compared with 28.5% in non-Veterans. The back pain was axial in 20% of Veterans and had features of sciatica in 12%. Veterans were more likely to have severe back pain (21.6%) compared with non-Veterans (16.7%).[6]

A study of LBP in U.S. Armed Forces found that LBP diagnoses were associated with over six million outpatient visits and over 25,000 hospitalizations among Active Duty Service Members during the years 2010–2014.[7] The overall annual incidence of LBP was 12.0%. Of patients with LBP, 88.3% received a diagnosis of "non-specific LBP," but many received more than one diagnosis for LBP, including degenerative changes (14.1%), herniated disc (9.7%), and spinal stenosis (1.8%).

METHODS

These recommendations were developed using methods established by the VA/DoD Evidence-Based Practice Work Group (EBPWG), which are aligned with standards for trustworthy guidelines developed by the Institute of Medicine. The EBPWG selected guideline panel co-chairs (two from the VA and the two from the DoD). The co-chairs then selected a

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multidisciplinary panel of practicing clinician stakeholders, including physicians, physical therapists, nurses, pharmacists, and a chiropractor. At the start of the CPG development process and at other key points throughout, all members were required to submit disclosure statements for potential conflicts of interest in the previous 24 months.

The VA contracted with The Lewin Group, a third party with expertise in clinical practice guideline development, to facilitate meetings. The guideline panel, in collaboration with the ECRI Institute, developed 10 key questions using the PICOTS (population, intervention, comparator, outcomes, timing of outcomes measurement, and setting) format. A systematic search of the peer-reviewed literature from January 2006 through September 2016 was conducted to find evidence relevant to the key questions that focused on randomized trials (RCT), systematic reviews (SR), and meta-analyses of fair or better quality. The search methods and results are detailed in the full guideline.

The guideline panel rated recommendations by using the GRADE (Grading of Recommendations Assessment, Development and Evaluation) method. The guideline panel focused on developing new and updated recommendations using the evidence review for the key questions. The panel also considered, without a complete review of the relevant evidence, the current applicability of recommendations that were included in the 2007 CPG.

As part of the development process, a patient focus group was also convened to better understand the perspectives of patients with low back pain in the VA and the DoD. Most of the participants had tried many different treatments, including pharmacologic therapies, surgery, injections, physical therapy, chiropractic care, exercise programs, acupuncture, and many self-care strategies. Important concepts that emerged from the focus group were shared with the panel and informed guideline development.

RESULTS

The VA/DOD EBPWG made 38 recommendations, 5 of which concerned diagnostic evaluation and 33 that concerned treatment. Recommendations are presented in Table 1, and algorithms for Initial Evaluation of Low Back Pain and Management of Low Back Pain are presented in Figs. 1 and 2 (modules A and B) along with recommended diagnostic work-up and intervention options in Tables 2 and 3.

Diagnostic Approach (Fig. 1, Table 1)

There are several important evidence-based recommendations for the diagnostic approach to low back pain. A history that includes behavioral health and physical examination is critical to identify treatable causes of LBP.[8,9] The majority of initial LBP patients experience self-limited episodes of pain with improvement within the first month.[10] However, a small proportion of LBP may be caused by an underlying condition like malignancy 0.7%, infection 0.01%, compression fracture 4%, spinal stenosis 3%, or symptomatic herniated disc 4%,[11] including the possibility of referred pain from a proximate organ such as pancreatitis, nephrolithiasis, aortic aneurysm, or endocarditis. Clinicians should also consider referred pain from the sacroiliac joint, hip joint, or trochanteric bursa. LBP could also be a manifestation of a systemic condition such as ankylosing spondylitis, rheumatoid arthritis, or multifocal underlying pain disorder (myofascial pain or fibromyalgia) that may be missed by addressing individual pain regions in isolation.

LBP of less than 3-month (acute or subacute) duration centered within the lumbar spine (i.e., axial LBP) and not extending beyond the lower back does not benefit from radiographs, computed tomography (CT), magnetic resonance imaging (MRI), or invasive diagnostic testing (discograms/other diagnostic injections).[11–16] In these cases, the potential harms/burdens outweigh the benefits. Advanced imaging is associated with a high rate of false positive clinically asymptomatic findings, (e.g., disc without neural impingement.[17] Once discovered, there is pressure for further workup and potential specialty referral.[18] Clinicians should not discredit patient's desires for imaging, but should discuss the negatives of routine diagnostic testing and imaging. MRI/CT is recommended when serious pathology is suspected or if the patient has severe or progressive neurologic deficits. With similar sensitivity/specificity for spinal stenosis, MRI is preferred due to increased soft tissue resolution and no ionizing radiation.[19,20] Decisions should be based on the clinical correlation between symptoms and imaging findings, severity of symptoms, patient preferences, costs, surgical risks including the patient's comorbid conditions, and whether specialist input will be available.[21]

INTERVENTIONS (FIG. 2, TABLE 3)

Education and Self-Care

Empowering the individual patient through education on the nature of their disease is vital to the management of chronic low back pain. A "strong for" recommendation was made in the guidelines for providing evidence-based information on back pain while enforcing the importance of remaining active and the utility of self-care treatments, such as weight loss and smoking/tobacco cessation. Further emphasizing the value of education in back pain management, a "weak for" recommendation was made for adding a structured education component that includes neurophysiology to the treatment algorithm. Evidence suggested that the addition of neurophysiologic education to specific treatments decreased kinesiophobia and catastrophizing, which improved overall treatment effects.

Non-pharmacologic and Non-invasive

Mindfulness-based stress reduction and cognitive behavioral therapy are two additional non-pharmacologic and non-invasive treatments that can improve chronic low back pain.

Table 1 Recommendations

No.	Recommendation	Strength*
1.	For patients with low back pain, we recommend that clinicians conduct a history and physical examination, that should include identifying and evaluating neurologic deficits (e.g., radiculopathy, neurogenic claudication), red flag symptoms associated with serious underlying pathology (e.g., malignancy, fracture, infection), and psychosocial factors.	Strong for
2.	For patients with low back pain, we suggest performing a mental health screening as part of the low back pain evaluation and taking results into consideration during selection of treatment.	Weak for
3.	For patients with acute axial low back pain (i.e., localized, non-radiating), we recommend against routinely obtaining imaging studies or invasive diagnostic tests.	Strong against
4.	For patients with low back pain, we recommend diagnostic imaging and appropriate laboratory testing when neurologic deficits are serious or progressive or when red flag symptoms are present.	Strong for
5.	For patients with low back pain greater than 1 month who have not improved or responded to initial treatments, there is inconclusive evidence to recommend for or against any diagnostic imaging.	Not applicable
6.	For patients with chronic low back pain, we recommend providing evidence-based information with regard to their expected course, advising patients to remain active, and providing information about self-care options.	Strong for
7.	For patients with chronic low back pain, we suggest adding a structured education component, including pain neurophysiology, as part of a multicomponent self-management intervention.	Weak for
8.	For patients with chronic low back pain, we recommend cognitive behavioral therapy.	Strong for
9.	For patients with chronic low back pain, we suggest mindfulness-based stress reduction.	Weak for
10.	For patients with acute low back pain, there is insufficient evidence to support the use of specific clinician-directed exercise.	Not applicable
11.	For patients with chronic low back pain, we suggest offering clinician-directed exercises.	Weak for
12.	For patients with acute or chronic low back pain, we suggest offering spinal mobilization/manipulation as part of a multimodal program.	Weak for
13.	For patients with acute low back pain, there is insufficient evidence to support the use of acupuncture.	Not applicable
14.	For patients with chronic low back pain, we suggest offering acupuncture.	Weak for
15.	For acute or chronic low back pain, there is insufficient evidence for or against the use of lumbar supports.	Not applicable
16.	For patients with chronic low back pain, we suggest offering an exercise program, which may include Pilates, yoga, and tai chi.	Weak for
17.	For patients with low back pain, there is insufficient evidence to support the use of ultrasound.	Not applicable
18.	For patients with low back pain, there is inconclusive evidence to support the use of transcutaneous electrical nerve stimulation (TENS).	Not applicable
19.	For patients with low back pain, there is insufficient evidence to support the use of lumbar traction.	Not applicable
20.	For patients with low back pain, there is insufficient evidence to support the use of electrical muscle stimulation.	Not applicable
21.	For patients with acute or chronic low back pain, we recommend treating with non-steroidal anti-inflammatory drugs, with consideration of patient-specific risks.	Strong for
22.	For patients with chronic low back pain, we suggest offering treatment with duloxetine, with consideration of patient-specific risks.	Weak for
23.	For patients with acute low back pain or acute exacerbations of chronic low back pain, we suggest offering a non-benzodiazepine muscle relaxant for short-term use.	Weak for
24.	For patients with chronic low back pain, we suggest against offering a non-benzodiazepine muscle relaxant.	Weak against
25.	For patients with low back pain, we recommend against benzodiazepines.	Strong against
26.	For patients with acute or chronic low back pain with or without radiculopathy, we recommend against the use of systemic corticosteroids (oral or intramuscular injection).	Strong against
27.	For patients with low back pain, we recommend against initiating long-term opioid therapy. For patients who are already prescribed long-term opioid therapy, refer to the VA/DoD CPG for the Management of Opioid Therapy for Chronic Pain.[1]	Strong against
28.	For patients with acute low back pain or acute exacerbations of chronic low back pain, there is insufficient evidence to recommend for or against the use of time-limited opioid therapy. Given the significant risks and potential benefits of opioid therapy, patients should be evaluated individually, including consideration of psychosocial risks and alternative non-opioid treatments. Any opioid therapy should be kept to the shortest duration and lowest dose possible.	Not applicable
29.	For patients with acute or chronic low back pain, there is insufficient evidence to recommend for or against the use of time-limited (less than 7 days) acetaminophen therapy.	Not applicable
30.	For patients with chronic low back pain, we recommend against the chronic use of oral acetaminophen.	Strong against
31.	For the treatment of acute or chronic low back pain, including patients with both radicular and non-radicular low back pain, there is insufficient evidence to recommend for or against the use of antiepileptics including gabapentin and pregabalin.	Not applicable
32.	For the treatment of low back pain, there is insufficient evidence to recommend for or against the use of topical preparations.	Not applicable
33.	For the treatment of low back pain, there is insufficient evidence to recommend for or against nutritional, herbal, and homeopathic supplements.	Not applicable
34.	For the long-term reduction of radicular low back pain, non-radicular low back pain, or spinal stenosis, we recommend against offering spinal epidural steroid injections.	Strong against
35.	For the very short-term effect (less than or equal to 2 weeks) of reduction of radicular low back pain, we suggest offering epidural steroid injection.	Weak for
36.	For the treatment of low back pain, we suggest against offering intra-articular facet joint steroid injections.	Weak against
37.	For patients with low back pain, there is inconclusive evidence to recommend for or against medial branch blocks and radiofrequency ablative denervation.	Not applicable
38.	For selected patients with chronic low back pain not satisfactorily responding to more limited approaches, we suggest offering a multidisciplinary or interdisciplinary rehabilitation program which should include at least one physical component and at least one other component of the biopsychosocial model (psychological, social, occupational) used in an explicitly coordinated manner.	Weak for

**See the VA/DoD Clinical Practice Guideline for the Management of Opioid Therapy for Chronic Pain. Available at: http://www.healthquality.va.gov/guidelines/Pain/cot/*

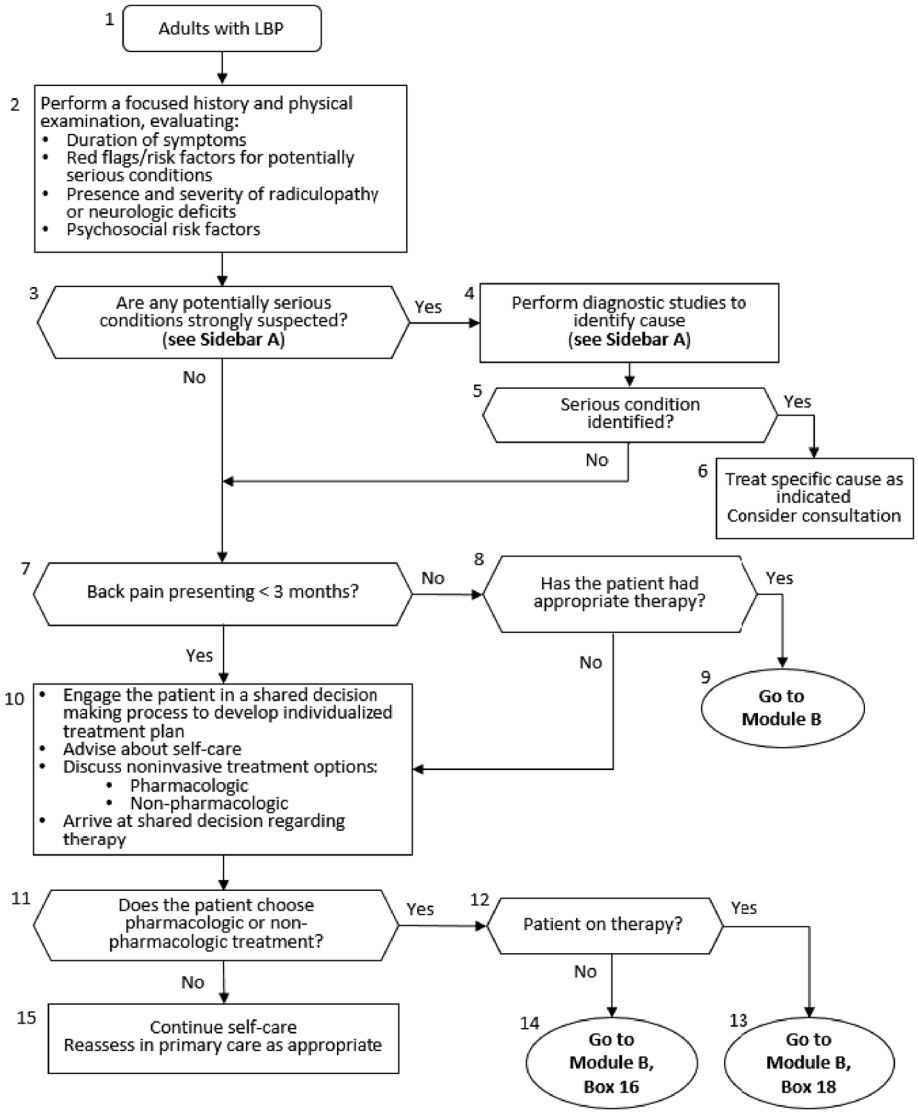

Figure 1 Module A: Initial Evaluation of Low Back Pain. Provides clinical algorithm incorporating clinical practice guidelines for initial evaluation of low back pain. Reference Table 2 for suggested diagnostic workup recommendations, and reference module B (Fig. 2) for clinical algorithm for management of low back pain. LBP low back pain.

While they are two distinct treatment entities, both focus on utilizing the power of the patient's mind to change cognitions and behaviors that perpetuate pain. These modalities are delivered by a mental health clinician or mindfulness-trained instructor and can ultimately lead to better acceptance and increased functionality in low back pain sufferers.

Evidence indicates that clinician-directed exercise, spinal mobilization/manipulation, and acupuncture offer benefits in the management of chronic back pain and a recommendation was made for their use. It also appears that spinal mobilization and manipulation are most effective when combined with other treatment modalities.

Pharmacotherapy

The guideline reviewed evidence and had recommendations related to all major drug classes commonly used in LBP.

Non-steroidal Anti-inflammatory Drugs

Evidence favors the use of non-steroidal anti-inflammatory drugs (NSAIDs) for both acute and chronic LBP with no clear difference in pain relief among different NSAIDs.[22,23]

The data for disability and functional outcomes is inconclusive.[23] Pooled results from seven studies that followed patients for 3 weeks or less found a higher proportion of patients reporting global improvements taking NSAIDs versus placebo. An SR found that most trials of comparisons of NSAIDs showed no differences in pain relief in patients with acute or chronic LBP.[22] Five studies also compared COX-2 NSAIDs with traditional NSAIDs and did not find a statistically significant difference in pain relief between the selective and non-selective NSAIDs.

RCTs reported inconclusive evidence of any differences regarding adverse effects between selected NSAIDs (naproxen, diclofenac, and dexketoprofen) and placebo (low- and very low-quality evidence).[23,24] However, COX-2 NSAIDs had

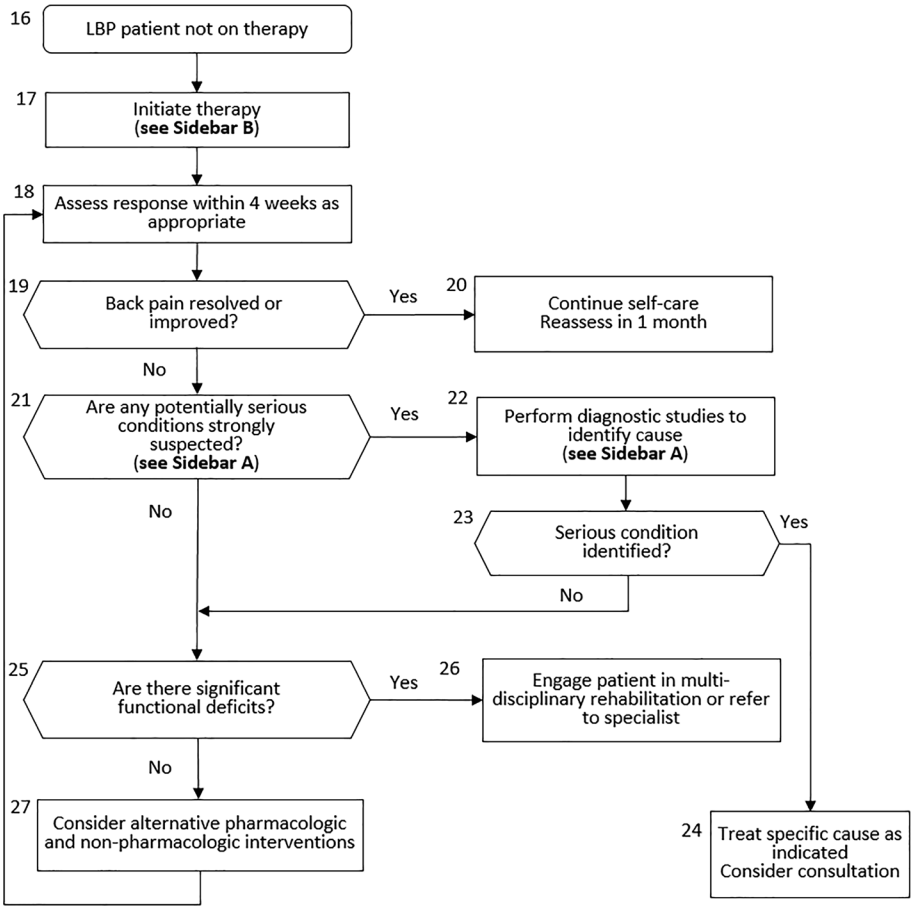

Figure 2 Module B: Management of Low Back Pain. Provides clinical algorithm incorporating clinical practice guidelines for management of low back pain. Reference Table 2 for suggested diagnostic workup recommendations, and reference Table 3 for intervention recommendations. LBP low back pain.

statistically fewer adverse effects than traditional NSAIDs.[22] We suggest the use of relatively COX-2-selective NSAIDs over non-selective NSAIDs based on patient risk factors, primarily GI toxicity. The benefit of reduced risk for GI events when using COX-2-selective inhibitors is negated if the patient is using aspirin.[25] All NSAIDs, selective and non-selective, have boxed warnings for increased risk of cardiovascular events.

Antidepressants

Duloxetine has moderate- to high-quality evidence that demonstrates improvements in pain and function. Of the serotonin and norepinephrine reuptake inhibitors (SNRI) class, only duloxetine has been studied in LBP; theoretically, other drugs in the SNRI class may have benefit similar to duloxetine.

Tricyclic antidepressants (TCAs) are commonly used in patients with chronic LBP. Based on a recent SR that found no benefit with TCAs for either pain or function, we do not recommend TCAs for LBP; in contrast, older studies have shown that TCAs provide a small improvement in pain intensity but were inconclusive in regard to function, quality of life, or healthcare utilization. Consideration of medical or psychiatric comorbidities is important and may influence the selection of SNRI or TCA. The effects of selective serotonin reuptake inhibitors (SSRIs) on LBP are inconclusive. The practice of adding a low-dose TCA to an SSRI was not sufficiently studied to make a recommendation.

Muscle Relaxants

There is moderate-quality evidence supporting non-benzodiazepine muscle relaxants for acute LBP. For chronic LBP, we suggest against offering a non-benzodiazepine muscle relaxant as there is no evidence for long-term use. The benefits of skeletal muscle relaxants were demonstrated in two SRs, but benefits were limited to short-term use of 3 to 7 days. Additionally, when comparing an NSAID alone to a combination of an NSAID and the skeletal muscle relaxant cyclobenzaprine, evidence demonstrates no difference in acute LBP. We found limited evidence to suggest benefit of one agent over another; however, when considering which agent to use, it is important to recognize that the agents differ significantly in adverse effect profiles. Muscle relaxants were associated with higher rates of central nervous system (CNS) effects including sedation, nausea, dizziness, and headache.

Benzodiazepines

We do not recommend benzodiazepines for patients with acute or chronic LBP, due to insufficient or inconclusive evidence to

Table 2 Diagnostic Workup

Possible causes or conditions	Red flags or risk factors on history or physical examination	Suggested diagnostic imaging
Cancer	History of cancer with new onset of LBP Unexplained weight loss Failure of LBP to improve after 1 month Age > 50 years Multiple risk factors present	Lumbosacral plain radiography For inconclusive results, advanced imaging such as MRI with contrast* as appropriate
Infection	Fever Intravenous drug use Recent infection Immunosuppression	MRI with contrast* ESR and CRP
Fracture	History of osteoporosis Chronic use of corticosteroids Older age (≥ 75 years old) Recent trauma Younger patients with overuse at risk for stress fracture	Lumbosacral plain radiography For inconclusive results, advanced imaging such as MRI†, CT, or SPECT as appropriate
Ankylosing spondylitis	Morning stiffness Improvement with exercise Alternating buttock pain Awakening due to low back pain back pain during the second part of the night (early morning awakening) Younger age	Anterior-posterior pelvis plain radiography
Herniated disc	Radicular back pain (e.g., sciatica) Lower extremity dysesthesia and/or paresthesia Positive straight-leg-raise test or crossed straight-leg-raise test	None
	Severe/progressive lower extremity neurologic deficits Symptoms present > 1 month	MRI†
Spinal stenosis	Radicular back pain (e.g., sciatica) Lower extremity dysesthesia and/or paresthesia Neurogenic claudication Older age	None
	Severe/progressive lower extremity neurologic deficits Symptoms present > 1 month	MRI†
Cauda equina or conus medullaris syndrome	Urinary retention Urinary or fecal incontinence Saddle anesthesia Changes in rectal tone Severe/progressive lower extremity neurologic deficits	Emergent MRI† (preferred)

**MRI with contrast, except where contraindicated (e.g., renal insufficiency), otherwise MRI without contrast*
†MRI, except where contraindicated, (e.g., patients with pacemakers), otherwise CT or CT myelogram
CT computed tomography, ESR, erythrocyte sedimentation rate, CRP C-reactive protein, LBP low back pain, MRI magnetic resonance imaging, SPECT single-photon emission computed tomography, e.g. exempli gratia (for example)

support their use. Benzodiazepines are also associated with potential risks. A good quality SR found inconclusive evidence between diazepam and placebo with respect to LBP improvement.[22,26] There is little evidence regarding adverse events with the use of benzodiazepines for LBP specifically, but an expanded review of pain management and pharmacology literature outside the LBP CPG evidence review suggests potential harms including misuse/abuse and overdose deaths from respiratory depression.[27] The risks are further compounded when combined with opioids (see the VA/DoD CPG on the Management of Opioid Therapy for Chronic Pain).[6] An SR reporting low-quality evidence found CNS adverse events such as somnolence, fatigue, and lightheadedness were reported more frequently with benzodiazepines versus placebo.[22]

Corticosteroids

The use of systemic corticosteroids for the treatment of acute or chronic LBP with or without radiculopathy is not recommended, as efficacy does not outweigh the potential risks. There is a lack of evidence for efficacy related to pain or disability.[22,28] There is no compelling evidence that the use of corticosteroids improves quality of life or decreases healthcare utilization in those receiving this treatment[22,28] and the overall quality of the evidence addressing disability and quality of life was low. Studies finding no important difference related to pain and mixed results related to healthcare utilization were of moderate quality.

There are risks associated with corticosteroid use in the short term, and repeated use may have more significant implications.[29] A moderate-quality study demonstrated short-term adverse events of insomnia, nervousness, increased appetite, indigestion, headache, joint pain, and sweating.[28]

Acetaminophen

A large SR found no difference between acetaminophen and placebo on the outcomes of mean pain, disability, quality of life, or function at 12 weeks (moderate-quality evidence).[30] A high-quality, large RCT ($N = 1652$) also showed no difference between acetaminophen and placebo.[31] As no benefits were demonstrated in the evidence, the consideration of harm/burden

Table 3 Interventions

Category	Intervention	Low back pain duration	
		Acute < 4 weeks	Subacute or chronic > 4 weeks
Self-care	Advice to remain active	X	X
	Books, handout	X	X
	Application of superficial heat	X	
Non-pharmacologic therapy	Spinal manipulation		X
	Clinician-guided exercise		X
	Acupuncture		X
	CBT and/or mindfulness-based stress reduction		X
	Progressive relaxation		X
	Exercise which may include Pilates, tai chi, and/or yoga		X
Pharmacologic therapy	NSAIDs	X	X
	Non-benzodiazepine skeletal muscle relaxants	X	
	Antidepressants (duloxetine)		X
Other therapies	Intensive interdisciplinary rehabilitation		X

CBT cognitive behavioral therapy, NSAIDs non-steroidal anti-inflammatory drugs

predominates because of the risks associated with taking acetaminophen (e.g., long-term liver effects at high dosage). Elderly individuals and patients with hepatic insufficiency are subgroups that may be at most risk for harm. The balance of harms associated with other options that can be provided to patients and the harms of removing acetaminophen as a viable treatment option need to be considered. Variation in values and preferences regarding acetaminophen is noted.

Antiepileptics

The evidence for use of antiepileptics is mixed, which prevented a recommendation for or against use in the treatment of LBP. Due to lack of evidence, we did not address the use of antiepileptic agents other than gabapentin or pregabalin. In one moderate-quality study, there was no difference in pain intensity between placebo and gabapentin for both radicular and non-radicular LBP.[32] There were two low- to very low-quality RCTs that indicated a small difference in pain in the short term but the differences were not clinically relevant.[33,34] There were no trials that addressed the use of antiepileptics in acute non-radicular pain. Pregabalin may have a greater impact on pain and disability when compared with amitriptyline, but the study was not of high enough quality to determine benefit of pregabalin over an antidepressant.[22] A RCT studying the treatment of pregabalin in patients with radiculopathy reported no significant reduction in leg pain intensity and a higher incidence of adverse events.[35]

There are significant adverse effects associated with the use of gabapentin or pregabalin, including fatigue, dry mouth, difficulties with mental concentration, memory, visual accommodation, and loss of balance.[32] It is important to note that pregabalin is a controlled substance, indicating some potential for abuse and dependence. Gabapentin is not a scheduled medication; however, there is literature indicating its misuse and abuse as well. While the use of gabapentin and pregabalin may provide small, short-term benefits, we cannot substantiate that the benefits outweigh the adverse effects due to lack of efficacy demonstrated in the available literature.

Glucosamine

The evidence review identified one SR with very low quality of evidence that included three trials.[36] Two of the included studies showed no difference between glucosamine and placebo. The benefits and harms/burden are balanced. One study considered adverse effects and found they were not significantly different between glucosamine and placebo (both groups had approximately 30% mild and transient GI and dermatological symptoms).[36] For the subgroup consideration of patients with hip and/or knee osteoarthritis, clinicians should not prescribe chondroitin sulfate, glucosamine, and/or any combination of the two, to treat joint pain or improve function (see the VA/DoD CPG for the Non-Surgical Management of Hip and Knee Osteoarthritis).[37]

Dietary Supplements

There were no nutritional, herbal, or homeopathic supplement studies identified in the evidence review for this guideline that met inclusion criteria. The degree of harms/burdens depends on the specific supplement being considered. As a category, due to the wide variety of preparations and their possible bioactivity, it is likely that many supplements used have harms that outweigh benefits (e.g., kava, ephedra). Given the wide range of supplements used, there is concern about the known and unknown adverse effects; drug-to-drug interactions; and the dosage, active ingredient, and purity of the supplements. Realizing that many patients use supplements, it is important for the provider to discuss with the patient their individual use of supplements to identify potential harms that may be associated with specific supplements.

Non-surgical Invasive

Common non-surgical invasive treatments for back pain include epidural steroid injections (ESI), intra-articular facet joint injections, selective nerve blocks (including medial branch blocks), and radio-frequency nerve ablation (RFA). Studies assessing these treatments were generally rated as low to moderate quality which is reflected in the weak and

inconclusive recommendations in the guideline. There was enough evidence to strongly recommend against epidural steroid injection for all but the shortest term endpoints. Procedures including ESI, selective nerve root (including medial branch) block, and RFA generally do not perform better than comparators in clinical trials for pain, function, return to work, or quality of life. These comparators included placebo procedures, oral NSAIDs or oral steroid, and saline, hyaluronic acid, or local anesthetic injection. In terms of avoiding future surgery, one trial reviewed that assessed subsequent risk of surgery did not show a clear benefit for these procedures. On the balance of risks and benefits, our guideline gave recommendations against ESI and facet injections, and found inconclusive evidence for medial branch blocks and RFA. We did find a benefit for ESI for very short-term (less than 2 week) endpoints but that temporary benefit should be assessed against the cost(s) and risk of the procedure.

Team Approach

According to the available evidence, a multidisciplinary biopsychosocial rehabilitation (MBR) approach that targets both physical and psychological care may be beneficial for patients with chronic low back pain. The literature does not consistently define MBR and heterogeneous programs for disciplines and treatment intensity are included. A recent definition refers to MBR as a coordinated program with both physical and biopsychosocial treatment components (at minimum) and provided by professionals from at least two different specialties.[1] A Cochrane SR reported greater reductions in pain and disability scores for patients receiving MBR programs compared with those receiving usual care, including for long term (≥ 12 months) follow-up, and improvements in work-related outcomes compared with patients receiving physical treatment alone.[38] In contrast, an SR and meta-analysis comparing MBR with physical-only and behavioral/psychological-only interventions found no clinically significant differences between pain and disability for the three approaches. We consequently provided a weak for recommendation for MBR programs that should be considered especially for patients with severe or complex LBP or those who have failed a more limited approach.[39]

DIFFERENCES BETWEEN GUIDELINES

The VA/DoD CPG has similarities and differences to other recent clinical guidelines. O'Connell and colleagues[40] have reviewed the inconsistencies across recent clinical practice guidelines on low back pain, in particular the 2017 American College of Physicians (ACP) Diagnosis and Treatment of Low Back Pain, 2016 NICE Guideline on Low Back Pain and Sciatica, and 2015 Evidence-Informed Primary Care Management of Low Back Pain. The authors determined inconsistencies in the various guidelines as primarily due to the following reasons: date of publication, evaluation of efficacy versus effectiveness between guidelines, size of treatment effects, and the scope of the guidelines. Also, the authors wrote that each clinical practice guideline development group had "a large capacity for interpretive differences" of inconsistent evidence, which was also "likely to reflect the local clinical culture" and "differences in culture and healthcare delivery."

Most importantly, the VA/DoD CPG has diverged from other clinical guidelines regarding several pharmacologic treatment options, particularly the use of benzodiazepines, steroid medications, opioid medications, and acetaminophen (Recommendations 26, 27, 28, 30). The 2017 ACP guidelines provide a weak recommendation to "consider opioids as an option in patients who have failed" other treatments, whereas the VA/DoD CPG has made a "strong against" recommendation for initiating long-term opioid therapy, and that "any opioid therapy should be kept to the shortest duration and lowest dose possible" (Recommendation 28). In addition, there were three additional "strong against" recommendations for the use of benzodiazepines (rec 25), oral/intramuscular steroid medications (rec 26), and chronic use of oral acetaminophen (rec 30); whereas the ACP guidelines do not provide clear recommendations regarding these commonly prescribed medications, and only recommend against using oral steroid medications for acute low back pain based on low-quality evidence.

O'Connell et al.[40] did find several consistent recommendations across previous guidelines regarding diagnosis, diagnostic assessment, and education/advice for patients, and the current VA/DoD CPG had similar recommendations for the diagnostic approach and education/self-care (Recommendations 1–7). In addition, all recent guidelines recommended some variation of exercises as therapy (non-pharmacologic/non-invasive treatment), as well as multimodal care options (biopsychosocial model). The current VA/DoD CPG had similar recommendations regarding exercise therapy (Recommendation 11) and had a "weak for" recommendation for the team approach with multidisciplinary care for chronic low back pain (Recommendation 38). There were also similar recommendations for use of NSAIDs as a first-line pharmacologic treatment for both acute and chronic LBP (Recommendation 21). When specifically compared with the 2017 ACP guidelines, the VA/DoD LBP CPG similarly recommended the use of duloxetine as a pharmacologic treatment (Recommendation 22), as well as cognitive behavioral therapy, mindfulness-based stress reduction, spinal mobilization/manipulation, acupuncture, and Pilates/yoga/tai chi (Recommendation 8, 9, 14, 16) for chronic low back pain.

SUMMARY

In summary, the VA/DoD CPG provides an evidence-based update for the diagnosis and treatment of low back pain, with significant implications for the treatment of patients in the military and Veteran health systems. However, there remains a significant challenge in developing and implementing clinical practice guidelines, particularly due to the substantial uncertainties when interpreting and comparing the available

evidence that includes heterogeneous studies with differences in quality and size.[40] The healthcare field will continue to improve the understanding of effective therapy through iterative re-evaluation of emerging evidence. Clinical practice guidelines, such as the VA/DoD CPG, provide a platform to communicate updated recommendations that allow shared decision making between clinical providers, policy makers, patients, and their family members.

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