

# Conservative Management of Back Pain: A Literature Update

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## Introduction

Most adults suffer from low back pain (LBP) at some time in their lifetime. The resulting medical costs and work-related productivity losses make LBP one of the most expensive ailments to our society today.<sup>1</sup> In the military, LBP is one of the largest detriments to Soldier health and mission readiness. Back disorders are among the most common causes of hospitalization, ambulatory medical visits, and restricted duty days in the U.S. Armed Forces.<sup>2</sup> The high cost, along with the lack of consistency of medical treatment for LBP, has resulted in the creation and implementation of clinical practice guidelines (CPG) for the management and treatment of LBP around the world.

In 1998, a team of 21 primary care, occupational health, physical medicine physicians, physical therapists, and orthopedic surgeons from the Veterans Health Administration (VHA) and Department of Defense (DOD) reviewed the available literature and previously published LBP CPGs to create the *VHA/DOD CPG for the Management of LBP or Sciatica in the Primary Care Setting* (VHA/DOD LBP CPG).<sup>3</sup> The stated purpose of this guideline was to “promote evidence-based management of persons with LBP or sciatica and thereby improve clinical outcomes.” The guideline also stated that it “will be updated as further research results become available and end-user feedback is obtained from the field trials in both the VHA and DOD health care systems.”<sup>3</sup> As of this writing, no such update has been published.

In 1993, the Cochrane Collaboration was founded to produce and disseminate systematic reviews of health care interventions and promote the search for evidence in the form of clinical trials and other studies of interventions.<sup>4</sup> The Collaboration’s major product, the Cochrane Database of Systematic Reviews, arguably represents the single largest collaborative pool of evidence on health care interventions ever created. The Cochrane Collaboration Back Review Group (BRG) was established in 1998, and 1 year later it published its first systematic review on LBP.<sup>5</sup> Between 1999 and 2003, the Cochrane Collaboration BRG published 22 back and neck pain related reviews and 11 protocols for future reviews. Since the VHA/DOD LBP CPG was written in 1998, no information from the Cochrane Database of Systematic Reviews was included in the CPG’s construction.

The purpose of this article is to present best-practice, evidenced-based conservative treatment and management guidance of LBP and sciatica by: (1) Reviewing the VHA/DOD LBP CPG. (2) Presenting a relevant literature update primarily from the Cochrane Database of Systematic Reviews.

## Summary of the VHA/DOD CPG for the Management of LBP or Sciatica in the Primary Care Setting

The VHA/DOD LBP CPG team used the *Agency for Health Care Policy and Research (AHCPR) Guideline for Acute Lower Back Problems in Adults*, current literature through 1998, and expert opinion to create an algorithm CPG to help primary care providers and specialists provide evidenced-based, cost-effective management, and treatment of LBP or sciatica in adults.<sup>6</sup> Each box of the CPG has a link to an annotation describing the evidence and recommendations of the panel (Figures 1 thru 3). The strength of the evidence is provided at the end of the annotation and is based on the AHCPR guideline as follows:

- A **Strong** research-based evidence (multiple relevant and high-quality scientific studies)
- B **Moderate** research-based evidence (one relevant, high-quality scientific study or multiple adequate scientific studies)
- C **Limited** research-based evidence (at least one adequate scientific study)
- D **Panel** interpretation of information that did not meet inclusion criteria as research-based evidence<sup>6</sup>

## History and Physical Examination: VHA/DOD LBP CPG (Figure 1)

Box 1 reminds providers that this guideline is only to be used in people over age 17. The annotation states: “Children are unique from adults and commonly have an identifiable organic etiology for LBP. Strength of Evidence (SE)=B.” Boxes 2 and 3 pertain to the history and physical examination. In the expanded annotations, the VHA/DOD LBP CPG states: “*The initial assessment of the patient with LBP is focused on identifying medical history responses and or physical examination findings that suggest “red flag” conditions. “Red flag” conditions include fractures, tumor, infection, cauda equina syndrome,*

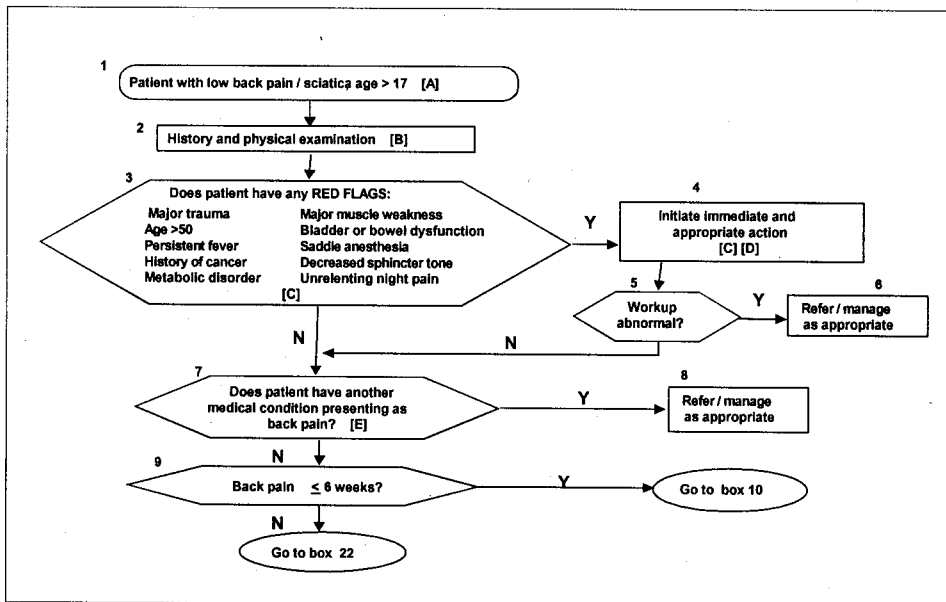


Fig 1. Management of LBP or sciatica in the primary care setting screening.

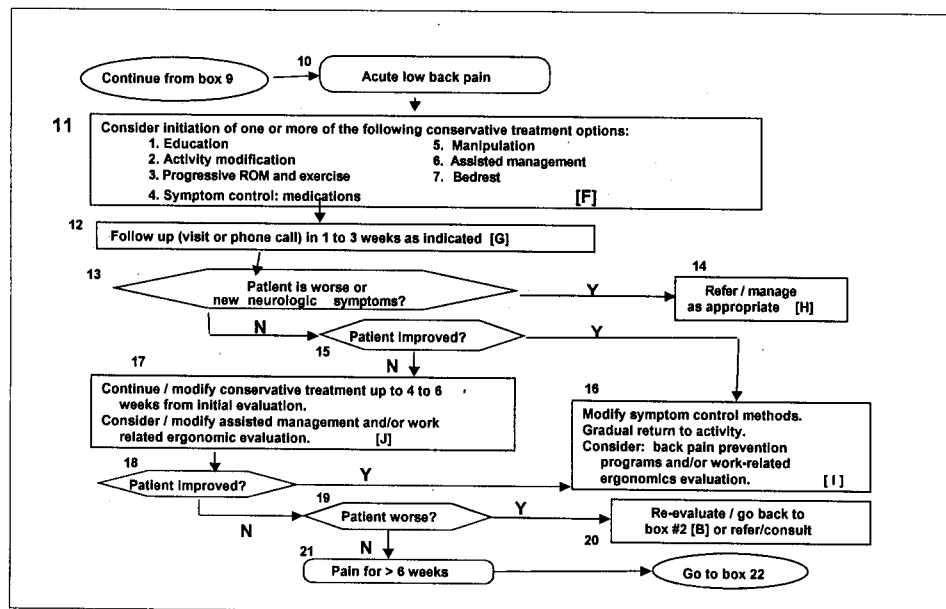


Fig 2. Management of LBP or sciatica in the primary care setting acute phase.

abdominal aortic aneurysm, or a significant herniated nucleus pulposus.”

The CPG reports that because over 90% of all clinically significant lower extremity radiculopathies due to disc herniation involve the L<sub>5</sub> or S<sub>1</sub> nerve root, the primary care neurological examination for patients with leg symptoms can safely be limited to a few tests including: (1) Strength of ankle dorsiflexion and great toe extension (L<sub>5</sub>) and ankle plantar flexion (S<sub>1</sub>). (2) Ankle reflexes (S<sub>1</sub>). (3) Light touch sensation in the medial (L<sub>4</sub>), dorsal (L<sub>5</sub>), and lateral (S<sub>1</sub>) aspects of the foot. (4) The straight leg raising test (SE=B).

Furthermore, only severe muscle weakness, defined as progressive muscle weakness (for example, muscle grading from 4/5 to 3/5), foot drop, and/or hip flexor and knee extensor weakness (grade 3/5), warrants early referral to a spine surgeon, and that sensory changes or loss of a reflex alone does not warrant early referral.

Generally, the VHA/DOD LBP CPG recommends a conservative imaging strategy. Initially, the CPG states that for acute LBP, more than 95% of patients do not require special interventions or diagnostic tests and recommends reserving imaging for patients that present with one or more “red flags.”

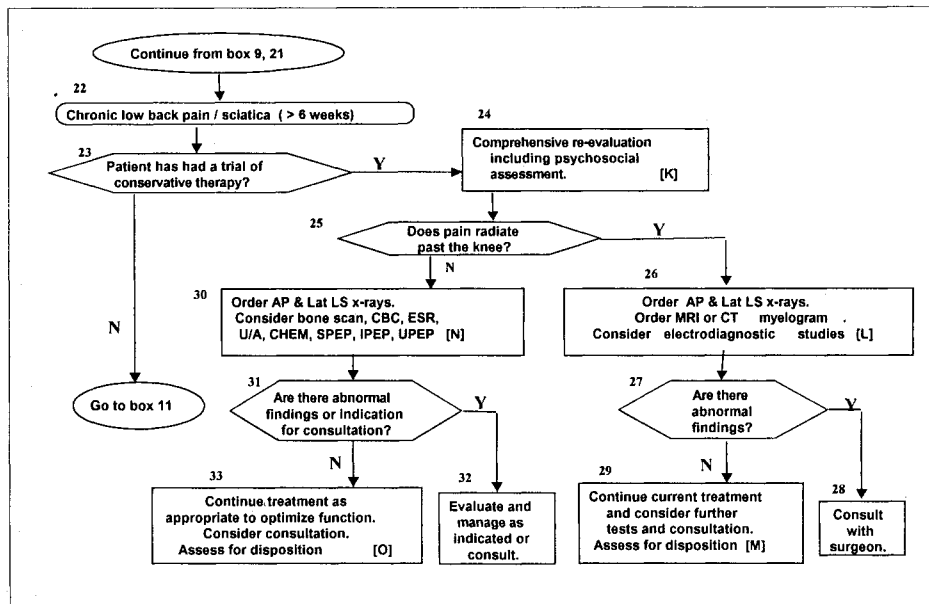


Fig 3. Management of LBP or sciatica in the primary care setting chronic phase.

However, if symptoms have not improved with 6 weeks of conservative treatment, (chronic LBP), the CPG recommends further workup including appropriate imaging (Figure 3, Boxes 26 and 30).

### History and Physical Examination: Literature Update

Recent literature continues to recommend similar diagnostic strategies and neurologic evaluation as the VHA/DOD LBP CPG. In a review of primary care evaluation of LBP, Deyo et al reported that because 85% of patients cannot be given a precise pathoanatomical diagnosis, and nonspecific terms such as strain or sprain have never been anatomically or histologically characterized, patients without identifiable spinal pathology should be said to have “idiopathic LBP.”<sup>7</sup> Recognizing the increasing understanding of the importance of psychosocial factors in LBP, Deyo et al purports that initial evaluation should focus on answering three questions: (1) Is there any underlying systemic disease? (2) Is there neurologic impairment that might require surgical evaluation? (3) Is there any social or psychological distress amplifying or prolonging pain?<sup>7,8</sup>

Recent literature also supports an imaging strategy similar to the one recommended by the CPG. Specifically: “For adults younger than 50 years of age with no signs or symptoms of systemic disease, symptomatic therapy without imaging is appropriate. For patients 50 years of age and older or those whose finding suggest systemic disease, plain radiography, and simple laboratory tests can almost completely rule out underlying systemic diseases. Advanced imaging should be

reserved for patients who are considering surgery or those in whom systemic disease is strongly suspected.”<sup>8</sup>

Jarvik et al found that rapid magnetic resonance imaging (MRI) and radiographs resulted in nearly identical outcomes, including pain, disability, and health care costs, for primary care patients with LBP.<sup>9</sup> However, because patients for whom rapid MRI was substituted for plain radiographs had a higher incidence of spine operations, the authors recommend that rapid MRI not be the first imaging test for primary care patients with back pain.

### Conservative Treatment

Once it is determined that patients with LBP and/or sciatica don’t have any red flags, the VHA/DOD LBP CPG recommends primary care providers institute one or more of the following conservative treatment measures (Figure 2, Box 11):

*Education: VHA/DOD LBP CPG. The VHA/DOD LBP CPG states: “Failure to receive an explanation of the problem was the most frequently cited source of patient dissatisfaction among 140 patients with low back problems. Patients who felt they did not receive an adequate explanation wanted more diagnostic tests (and) were less satisfied with their visit.... Evidence indicates that being positive (by giving patients a firm diagnosis and confidently telling them the problem will be better in a few days) in your consultation improves patient's outcome. Therefore, the panel recommends that the patient be given an accurate nonpathoanatomical diagnosis of LBP, but be told confidently that the examination findings suggest no serious pathology.”*

*Education: Literature Update.* Recent reviews on the treatment and management of LBP in primary care continue to recommend giving nonpathoanatomical diagnoses and reassurance to patients.<sup>7,8</sup> To investigate the effectiveness of education on treating LBP, the Cochrane Collaboration review titled, *Back Schools for Non-Specific LBP*, was published in May 99. Last updated May 03, the review included 15 randomized controlled trials (RCTs) that met their quality criteria. The review concluded "there is moderate evidence that back schools are more effective than other treatments for chronic LBP and moderate evidence that back schools in an occupational setting are effective." The review warned, however, that the positive effects of back schools have been shown only in the short-term and only with chronic back pain. Furthermore, there is not enough data to determine which type of back school is effective to what type of patients or to make any conclusions about cost-effectiveness.<sup>10</sup>

*Activity Modification: VHA/DOD LBP CPG.* The VHA/DOD LBP CPG sites very little evidence to make specific recommendations regarding activity modification for patients with LBP. However, because patients very often seek these recommendations from health care providers, the panel wanted to include some guidance-based mostly on expert opinion. The CPG states:

- Activity modifications are aimed at allowing the patient with acute LBP to achieve a tolerable comfort level while continuing adequate physical activity to avoid debilitation. Patients with acute LBP can be advised to limit, temporarily, any heavy lifting, prolonged sitting, and bending or twisting the back since these activities have been shown to increase mechanical stress on the spine. (SE=D)

- Nonphysical factors, such as emotional distress, low work satisfaction, and fear of pain may also affect an individual's symptoms and response to treatment. Activity goals can help keep attention focused on the expected return to full functional status and emphasize physical conditioning to improve activity tolerance. (SE=C)

*Activity Modification: Literature Update.* Evidence-based activity modification recommendations for patients with LBP remain very slim. The Cochrane Collaboration published a review on advice to stay active as a single treatment for LBP and sciatica in 2002. The review included four RCTs that met their quality criteria and compared, (1) staying active versus bed rest and (2) staying active versus other treatment. Although results were heterogeneous, the review concluded "Advice to stay active as a single intervention, compared with bed rest or exercises, may have little beneficial effect for patients with acute, simple LBP and may not be better or worse than prolonged best rest for patients with sciatica." However,

because the review found no evidence that advice to stay active is harmful for either acute LBP or sciatica, and prolonged bed rest may have harmful effects, the authors concluded that it is reasonable to advise people with acute LBP and sciatica to stay active.<sup>11</sup>

*Progressive Range of Motion (ROM) and Exercise: VHA/DOD LBP CPG.* Regarding recommending progressive ROM and exercise, the VHA/DOD LBP CPG states:

- Until the patient returns to normal activity, aerobic (endurance) conditioning exercise such as walking, stationary biking, swimming, and even light jogging may be recommended to help avoid debilitation due to inactivity. (SE=C)

- Specific trunk muscle conditioning exercises are helpful; especially those for back extensor muscles for patients with persistent symptoms. (SE=C)

- There is evidence that patients improve faster when exercise repetitions are determined by quotas rather than guided by the patient's pain experience. (SE=C)

*Progressive ROM and Exercise: Literature Update.* The Cochrane Collaboration first published a review on exercise therapy for LBP in 2000. Updated in 2003, the review included 39 RCTs on specific exercises including back and abdominal strengthening, stretching, flexion, extension, static, dynamic, and aerobic exercises. Contradictory to the CPG, the review found strong evidence that exercise therapy is not more effective than inactive treatment or other active treatments for acute LBP. Similarly, the review stated that flexion and extension exercises are not effective in the treatment of acute LBP. For the treatment of chronic LBP, the review found mixed evidence that exercise therapy is more effective than other treatments. The review concluded that there is strong evidence that exercise therapy is more effective than the usual care by general practitioners and equally effective as conventional physical therapy (consisting of hot packs, massage, traction, mobilization, shortwave diathermy, ultrasound, stretching, flexibility and coordination exercises, and electrotherapy) for chronic LBP. Overall, the review concluded that exercises might be useful only in the treatment of chronic LBP if they aim at improving return to normal daily activities and work.<sup>12</sup>

*Symptom Control/Medications: VHA/DOD LBP CPG.* Since decreasing pain is usually a patient's first concern, the VHA/DOD LBP CPG makes recommendations both for oral and injectable medications. The CPG states:

- Acetaminophen is reasonably safe and is acceptable for treating patients with acute low back problems. (SE=C).

- Non-steroidal anti-inflammatory drugs (NSAIDs) are acceptable for treating LBP; various types of NSAIDs are equally effective for LBP. (SE=B)

- Muscle relaxants are an effective treatment option for patients with acute LBP. (SE=B)

- Opioids appear to be no more effective in relieving LBP symptoms than safer analgesics, such as acetaminophen, aspirin, or other NSAIDs. (SE=C)

- Oral steroids are not recommended for the treatment of acute LBP. (SE=C)

- Trigger point and ligamentous injections are not recommended for the treatment of acute LBP. (SE=C)

- Facet joint injections are invasive and not recommended with acute LBP. (SE=C)

- There is limited evidence to support the use of epidural steroid injections for acute LBP with nerve root pain and radicular neurologic deficit. (SE=C)

#### *Symptom Control/Medications: Literature Update.*

Recent reviews continue to support the recommendations of the VHA/DOD LBP CPG.<sup>13-15</sup> The Cochrane Collaboration published reviews on NSAIDs for LBP, muscle relaxants for nonspecific LBP, and injection therapy for sub-acute and chronic benign LBP.<sup>13-15</sup> The review on NSAIDs was updated in November of 2002 and included 51 quality trials. The review reported “NSAIDs are slightly effective for short-term global improvement” and those different NSAIDs are equally effective for acute LBP. Additionally, they found that NSAIDs paired with muscle relaxants or with B vitamins are no more effective than NSAIDs alone. The review could not make any conclusions about the effectiveness of NSAIDs on chronic LBP because the four studies that reported outcomes specifically on chronic LBP made heterogeneous comparisons.<sup>13</sup>

The use of muscle relaxants for LBP continues to be a source of controversy for medical providers, likely, in part, due to the controversy over beliefs about muscle spasm in the pathophysiology of LBP. Additionally, there are many different types of “muscle relaxant” drugs with differing effects and mechanisms of action. Most broadly, they can be divided into antispasmodics and antispasticity medications. Antispasmodics can be subclassified into benzodiazepines and nonbenzodiazepines. The Cochrane Collaboration review on muscle relaxants for nonspecific LBP was updated in Feb 03 and reviewed the effect of all types of drugs classified as muscle relaxants. From 30 RCTs the review found strong evidence that any of the studied muscle relaxants are more effective than placebo for patients with acute and chronic LBP on short-term

pain relief and that different muscle relaxants are equally effective. However, the high incidence of side effects including drowsiness and dizziness led the authors to conclude that “muscle relaxants must be used with caution and it must be left to the discretion of the physician to weigh the pros and cons.”<sup>14</sup>

Therapeutic injections for LBP are another therapy that remains controversial. The Cochrane Collaboration review on injection therapy for sub-acute and chronic benign LBP aimed to examine the effectiveness of facet joint injections, epidural injections, and local injections (into tenderpoints, triggerpoints, and acupuncture points as well as sclerosing agent injections into ligaments) on treating LBP. The review was updated May 03 and included 21 RCTs. The authors reported a significant lack of convincing evidence regarding the effectiveness of all injections for treating LBP. Furthermore, the authors questioned the rationale of injecting a short-acting anesthetic for prolonged pain relief. The review concluded: “Facet joint, epidural, and local injection therapy has not yet shown to be effective, nor has it been shown to be ineffective. Because of the tendency toward positive results favoring injection therapy and the minor side effects reported by the reviewed studies, there is at the moment no justification for abandoning injection therapy in patients with LBP.”<sup>15</sup>

*Manipulation: VHA/DOD LBP CPG.* Regarding spinal manipulation for LBP, the VHA/DOD LBP CPG states: “Within the first 6 weeks of the onset of acute or recurrent LBP, manipulation provides better short-term improvement in pain and activity levels and higher patient satisfaction than the treatments to which it has been compared (SE=B). Furthermore, the risks of manipulation for LBP are very low, provided patients are selected and assessed properly and the manipulation is done by a trained therapist or practitioner.”

Additionally, the CPG states, “selected patients with a nonprogressive radiculopathy may benefit from a trial of manipulation.” However, in the presence of severe or progressive neurological deficits, the CPG recommends that providers perform an appropriate diagnostic assessment before beginning manipulative therapy.

*Manipulation: Literature Update.* Literature reviews performed after the publication of the VHA/DOD LBP CPG have drawn less encouraging conclusions regarding the effectiveness of manipulation. The Cochrane Collaboration BRG has published a protocol for a review on the effectiveness of spinal manipulation, but has not yet performed the review.<sup>16</sup>

The most recent review, *Spinal Manipulative Therapy for LBP: A Meta-Analysis of Effectiveness Relative to Other Therapies*, was published in Jun 03 and reviewed 39 RCTs. The review found that for patients with acute and chronic LBP,

manipulation was only more effective than sham therapy or therapies judged to be ineffective (such as spinal traction, corset, bed rest, topical gel, and diathermy). No difference was found between spinal manipulative therapy and general practitioner care, analgesics, physical therapy, exercises, or back school. The review concluded, "spinal manipulative therapy is probably more effective than a placebo, but its effectiveness compared with other advocated therapies is substantially less than previous reviews and meta-analyses have suggested."<sup>17</sup>

*Assisted Management: VHA/DOD LBP CPG.* The VHA/DOD LBP CPG does not give any specific guidance or rules when primary care providers should refer LBP patients to physical therapists or other conservative spinal care professionals. The CPG merely states: "In certain cases where patients' symptoms are moderate to severe, or when duty obligations require a rapid return to full functional status, assisted management may be indicated." Although in the military LBP is often managed by physical therapists, and physical therapist provide the majority of interventions discussed elsewhere (education, exercise, manipulation), the CPG seems to infer that assisted management is nearly synonymous with physical therapy. The VHA/DOD LBP CPG further divides assisted management into transcutaneous electrical nerve stimulation (TENS), shoe insoles and shoe lifts, lumbar corsets and back belts, traction, biofeedback, acupuncture, and physical agents and modalities (ice, heat, massage, ultrasound, cutaneous laser treatments, and electrical stimulation except TENS). Regarding physical agents and modalities, the CPG reports that no well-designed RCT supports their use as treatments for acute LBP. However, because some patients with acute LBP appear to have temporary symptomatic relief, providers may recommend self-administered home programs of heat or cold. More specifically the VHA/DOD LBP CPG states:

- The benefit of using physical agents and modalities in the treatment of acute LBP has not been proven to justify cost. (SE=C)
- TENS is not recommended for treating patients with acute LBP. (SE=C)
- Shoe insoles may be effective in selected patients with acute LBP. (SE=B)
- Lumbar corsets and low back belts have not proven beneficial in acute LBP. (SE=D)
- Spinal traction is not recommended in treating patients with acute LBP. (SE=C)
- Biofeedback is not recommended in treating patients with acute LBP. (SE=C)

- Acupuncture is not recommended in treating patients with acute LBP. (SE=D)

*Assisted Management: Literature Update.* To date, the Cochrane Collaboration BRG has performed systematic reviews on a minority of the VHA/DOD LBP CPG's assisted management therapies. Several other reviews have been planned by the BRG, and may be available shortly after this articles publication.<sup>16,18,19</sup> *Massage for LBP: A Systematic Review within the Framework of the Cochrane Collaboration Back Review Group* was published in Sep 02. Although massage is most often used as an adjunct treatment for LBP, only eight RTCs that looked at massage separately were included. The review found that "massage might be beneficial for patients with sub-acute and chronic nonspecific LBP, especially if combined with exercise and delivered by the licensed therapist." Furthermore, and contrary to current belief, the review found that massage may have long-lasting beneficial effects (at least 1 year) on LBP and that acupuncture massage is more effective than classic massage.<sup>20</sup>

A Cochrane review on TENS for chronic LBP was updated in May 03. The review aimed to not only determine the effectiveness of TENS in the treatment of chronic LBP, but also to determine the most effective method of administering TENS including, frequency, intensity, application techniques, duration of treatment, and site of application. The review found a significant lack of quality RCTs evaluating TENS resulting in the inclusion of only five trials. Consistent with the recommendation of the VHA/DOD LBP CPG for acute LBP, this review found no evidence to support the use of TENS in the treatment of chronic LBP. Furthermore, because of the heterogeneity of included studies, the evidence provides no data on the optimal application of TENS.<sup>21</sup>

*Lumbar Supports for Prevention and Treatment of LBP: A Systematic Review within the Framework of the Cochrane Collaboration Back Review Group* was published in Feb 01 and updated in Feb 03. The review included five randomized and two nonrandomized preventive trials and six randomized therapeutic trials. Regarding prevention of LBP, results showed that there was "moderate evidence that lumbar supports are not effective in preventing LBP and that lumbar supports are not more effective than other types of prevention for LBP." This finding is consistent with the recommendations of both the VHA/DOD LBP CPG and the National Institute for Occupational Safety and Health. Regarding the treatment of LBP, the results showed conflicting evidence of the effectiveness of lumbar supports and it remains unclear whether lumbar supports are more effective than other interventions for the treatment of LBP. Based on these findings the review does not recommend lumbar supports for the primary prevention or treatment of LBP.<sup>22</sup>

The Cochrane Collaboration's review on acupuncture for LBP was updated in Feb 03 and included 11 RCTs. In addition to evaluating the effectiveness of acupuncture, the review aimed to perform subgroup analysis of acute versus chronic LBP and for LBP with radiation versus without radiation. Results indicated, "there was no evidence that acupuncture is more effective than no treatment, there was moderate evidence that acupuncture is not more effective than trigger point injection or TENS, and there was limited evidence that acupuncture is not more effective than placebo or sham acupuncture for the treatment of chronic LBP." Because most studies contained mixed subject groups, subgroup analysis could not be performed.<sup>5</sup>

*Bed Rest: VHA/DOD LBP CPG.* One of the strongest recommendations that the VHA/DOD LBP CPG makes regarding the conservative treatment of LBP is against using bed rest for simple back pain (SE=A). The CPG states: "The aim is to minimize bed rest and use symptomatic measures to control pain so patients can return to normal activity as soon as possible. Some patients initially may be confined to bed as a consequence of their pain but this should not be considered a treatment. For acute or recurrent LBP with or without referred leg pain, bed rest for 2 to 7 days is worse than a placebo or ordinary activity."

*Bed Rest: Literature Update.* The Cochrane Collaboration review on bed rest for acute LBP and sciatica, updated in Feb 02, supports the recommendation of the VHA/DOD LBP CPG. From nine RCTs, the review concluded, "bed rest is not effective in the treatment of LBP, and might have small harmful effects on acute LBP." Furthermore, based on the strength of evidence, the review stated "no further research on the role of bed rest in the treatment of acute LBP is needed."<sup>23</sup>

### **Chronic Phase of LBP and Sciatica: VHA/DOD LBP CPG (Figure 3)**

The VHA/DOD LBP CPG recommends the implementation of the above conservative treatment options along with regular re-evaluation until patients have had symptoms for greater than 6 weeks. Once patients have been treated conservatively for 6 weeks and they have not had a substantial improvement in their symptoms, they enter into the "Chronic Phase" of the algorithm. At this point, the CPG recommends a "comprehensive re-evaluation including psychosocial assessment and physical examination" (Box 24). The "comprehensive re-evaluation" should include imaging, laboratory tests, and electrodiagnostic studies depending on whether pain radiates past the knee (Boxes 25, 26, and 30). The VHA/DOD LBP CPG states, "Patients who have persistent radicular pain, a correlative imaging study, and a motor/reflex tingling, are candidates for a surgical intervention" (SE=B).

For the psychosocial assessment portion of the "comprehensive re-evaluation" the CPG suggests providers consider using one or more of the following screens: (1) Waddell's signs and symptoms of inappropriate or nonorganic distress. (2) The Oswestry Questionnaire. (3) Fear Avoidance Behavior Questionnaire. (4) Modified Work APGAR Score for Job Task Satisfaction. (5) DSM-IV Screening Checklist for Depression. (6) Zung's Self-Rating Depression Scale. (7) CAGE Screening Checklist for Possibility of Alcohol Abuse.

Emphasizing the importance of psychosocial factors in chronic LBP, the VHA/DOD LBP CPG states: "Patients with chronic LBP present complex problems, and often a patho-anatomic cause is not apparent. Unlike acute pain, chronic pain often is not associated with ongoing tissue injury, serves no biological usefulness, and may not be accompanied by the autonomic response of sympathetic over activity. Vegetative signs, such as sleep disturbance, appetite disturbance, and irritability appear. Pain can be reinforced or perpetuated by social and psychological factors. Back pain can affect employment, income, family, and social roles, producing psychological distress that increases pain and disability."

Therefore, the CPG concludes: "social, economic, and psychological factors are *more important* than physical factors in affecting the symptoms, response to treatment, and long-term outcomes of patients with chronic low back problems."

The VHA/DOD LBP CPG algorithm ends by suggesting that, if surgical intervention is not warranted, providers consider a referral to a nonsurgical back specialist such as a provider from psychiatry, neurology, occupational medicine, rheumatology, or primary care sports medicine. Finally, "for active duty personnel who have not improved after 4 to 6 months of treatment, also consider referral to the Medical Evaluation Board for possible reclassification or discharge from service."

*Psychosocial-Based Treatment Literature Update.* Although the VHA/DOD LBP CPG portrays the growing correlational evidence of psychosocial factors and chronic LBP, at the time of its writing, very little was known about the association of psychosocial factors with acute LBP or about the effectiveness of psychosocial-based treatment on LBP. Recently, the Cochrane Collaboration BRG has published several reviews concerning psychosocial treatment for LBP.<sup>24-26</sup>

Behavioral treatment of LBP focuses primarily on the reduction of disability through the modification of environmental contingencies and cognitive processes. Behavioral treatment for Chronic LBP: A Systematic Review within the Framework of the Cochrane Back Review Group was published in Oct 00. The review included 20 RCTs, which

provide strong evidence that “behavioral treatment of patients with chronic LBP has a positive effect on pain intensity, generic functional status, and behavioral outcomes when compared with waiting-list controls or no treatment.” It remains unclear, however, if a specific type of behavioral treatment is superior to another or which patients benefit most from behavioral treatment.<sup>24</sup>

Two Cochrane Collaboration reviews were performed on the effect of multidisciplinary biopsychosocial rehabilitation (MDBPSR) on LBP- one on chronic LBP and one on sub-acute LBP among working age adults. There is no consistent definition of MDBPSR, but the approach usually addresses physical, psychological, and social/occupational factors involved in pain syndromes. Both Cochrane Collaboration reviews required that MDBPSR programs include both a physical dimension and at least a psychological or social/occupational dimension. The review on chronic LBP included 10 RCTs while only two trials could be included in the review on sub-acute LBP. The reviews found both a statistically and clinically positive effect of intensive MDBPSR programs on pain and function in both patients with sub-acute and chronic LBP. In addition, less intensive programs were no better than control nonmultidisciplinary programs on chronic LBP.<sup>25,26</sup>

## Discussion

As a whole, the VHA/DOD CPG for the Management of LBP or Sciatica in the Primary Care Setting is still consistent with current evidence. Recent reviews and literature on the primary care management of LBP support the VHA/DOD LBP CPG in recommending providers focus on “red flags,” indicative of underlying systemic disease or neurologic compromise that may require surgical intervention. In the absence of “red flags,” current literature continues to support a conservative imaging strategy and nonspecific diagnostic labels, such as “idiopathic LBP.”<sup>7,9</sup>

Regarding the conservative treatment of LBP and sciatica, data from the Cochrane Database of Systematic Review supports the VHA/DOD LBP CPG except for its recommendations on injections, exercise therapy, and spinal manipulation.<sup>12,15,17</sup> Positive and reassuring educational strategies and back schools are still recommended.<sup>10</sup> Advising LBP patients to stay active within the limits of pain continues to be recommended.<sup>11</sup> Prescription of NSAIDs, acetaminophen, and muscle relaxants are still recommended.<sup>13,14</sup> Prolonged bed rest is still strongly discouraged.<sup>23</sup> The use of TENS, lumbar supports, and acupuncture continue to be not recommended.<sup>5,21,22</sup> The use of facet, trigger point, and ligament injections are controversial. The VHA/DOD LBP CPG recommends against their use, but the Cochrane review reports no evidence to abandon them.<sup>15</sup> The VHA/DOD LBP CPG

recommends the use of both general aerobic exercise and specific trunk muscle conditioning exercises for the treatment of LBP and sciatica. The Cochrane Collaboration review on exercise therapy, however, found mixed evidence and supported the use of exercise therapy only in the treatment of chronic LBP when aimed at improving return to normal daily activities and work.<sup>12</sup> Likewise, the VHA/DOD LBP CPG recommends spinal manipulation for patients with acute LBP and possibly even for those with a nonprogressive radiculopathy. The most recent review of spinal manipulative therapy, however, found spinal manipulation for both acute and chronic LBP was only more effective than sham and ineffective treatments, and it was not more effective than general practitioner care, analgesics, physical therapy, exercises, or back school.<sup>17</sup>

The VHA/DOD LBP CPG describes the importance of psychosocial factors in chronic LBP and disability, and there is now evidence supporting both behavioral and multidisciplinary biopsychosocial *treatment* for sub-acute and chronic LBP.<sup>24-26</sup> Because psychosocial factors are among the most important determinants of chronic LBP, many researchers are now exploring the relationship of psychosocial factors and acute LBP, especially as risk factors for chronic LBP and future disability. In New Zealand, this concept has led to the development of “yellow flags” in their national LBP guidelines.<sup>27</sup> Whereas “red flags” indicate the need for more rigorous biomedical investigation to rule out serious pathology, “yellow flags” are indications for further investigation of cognitive, behavioral, or social aspects of acute LBP.<sup>28</sup> Although the idea of using tools such as “yellow flags” shows promise, it is still in its infancy, and little is known about the reliability, validity, and usefulness of such tools.<sup>29</sup>

Overall findings of both the VHA/DOD LBP CPG and the Cochrane Collaboration reviews on LBP is that very few conservative treatments of LBP are very effective. This general finding, together with the classic assumption that “90% of LBP spontaneously resolves within 4 to 6 weeks,” leads to the CPG’s implication that most nonspecific LBP and sciatica can be effectively and efficiently managed initially with minimal intervention and in primary care. Although data from the Cochrane Database of Systematic Review supports most of the recommendations of the VHA/DOD LBP CPG, the timing and vigor of LBP intervention still is the subject of much debate.

Recent epidemiological evidence shows that LBP is actually more accurately viewed as a chronic condition characterized by a fluctuating pattern of acute exacerbations rather than acute and self-limiting.<sup>30</sup> Additionally, several recent studies support the efficacy and cost-effectiveness of early physical therapy intervention.<sup>31-34</sup> One such study, retrospectively, analyzed 3,867 patients with LBP less than 3



weeks. The patients were treated with a "sports medicine approach" emphasizing conditioning exercises, manual therapy, and education. Results showed that earlier referral to physical therapy was associated with fewer physician visits, fewer restricted workdays, fewer days away from work, and shorter case duration.<sup>34</sup>

Another trend in current LBP research concerns the development of a classification system for LBP that would allow interventions to be more effectively paired with specific dysfunctions. Some researchers purport that "lumping" LBP in one homogenous group may explain the general lack of literature support for most conservative LBP treatments.<sup>33,35</sup> They argue that although we have not successfully classified LBP into reliable and valid pathoanatomical subgroups, it is unlikely that all LBP is homogenous. During research, if a specific intervention is effective in treating only a subgroup of LBP patients, the positive result may be diluted to nonsignificance when lumped in with the results of the other LBP subjects. Our failure to classify LBP based on pathoanatomy has led many clinicians and some researchers to develop classification systems based on symptoms and clinical findings.<sup>33,35</sup> Fritz et al compared treatment of one such classification system to treatment based on AHCPR clinical practice guideline recommendations in patients with acute LBP.<sup>33</sup> Patients treated by the AHCPR CPG recommendations were all given the same interventions including advice to remain active, low-stress aerobic exercise, and general muscle reconditioning exercises. Patients treated by the classification system were divided into one of four treatment groups based on their symptoms and clinical findings: mobilization, specific exercise, immobilization, or lumbar traction. After 4 weeks, the group treated by the classification-based approach had less disability, higher patient satisfaction, and more returned to work than the patients treated by the guideline recommendations. Although this classification system shows promise, a great deal of research is still needed to validate this or other classification systems and it will likely be many years before providers and researchers can agree on the best classification system for LBP.

## Conclusions

Recommendations of the *VHA/DOD CPG for the Management of LBP or Sciatica in the Primary Care Setting* are still generally consistent with current literature. Since the guideline's publication, there is an increased awareness of the importance of psychosocial factors in LBP, and growing evidence of the effectiveness of psychosocial-based treatment on patients with sub-acute and chronic LBP.

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