

Best Practices for Chiropractic Management of Adult Patients With Mechanical Low Back Pain: A Clinical Practice Guideline for Chiropractors in the United States

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ABSTRACT

Objective: The purpose of this paper was to update the previously published 2016 best-practice recommendations for chiropractic management of adults with mechanical low back pain (LBP) in the United States.

Methods: Two experienced health librarians conducted the literature searches for clinical practice guidelines and other relevant literature, and the investigators performed quality assessment of included studies. PubMed was searched from March 2015 to September 2021. A steering committee of 10 experts in chiropractic research, education, and practice used the most current relevant guidelines and publications to update care recommendations. A panel of 69 experts used a modified Delphi process to rate the recommendations.

Results: The literature search yielded 14 clinical practice guidelines, 10 systematic reviews, and 5 randomized controlled trials (all high quality). Sixty-nine members of the panel rated 38 recommendations. All but 1 statement achieved consensus in the first round, and the final statement reached consensus in the second round.

Recommendations covered the clinical encounter from history, physical examination, and diagnostic considerations through informed consent, co-management, and treatment considerations for patients with mechanical LBP.

Conclusion: This paper updates a previously published best-practice document for chiropractic management of adults with mechanical LBP. (*J Manipulative Physiol Ther* 2023;00:1-15)

Key Indexing Terms: *Low Back Pain; Manipulation, Chiropractic; Manipulation, Orthopedic; Manipulation, Osteopathic; Musculoskeletal Manipulations*

INTRODUCTION

Low back pain (LBP) is the leading cause of disability in the United States (US) and exacts an expensive toll on

society and individuals.¹ Globally, as of 2015, more than half a billion people had LBP.² There are many approaches to the evaluation and treatment of LBP, with varying risks and outcomes. Appropriate clinical interventions using an evidence-based approach are believed to provide better and more cost-effective care.³ As of 2017, there were an estimated 77 000 practicing chiropractors in the US. Doctors of chiropractic (DC) use a conservative, non-surgical, and non-pharmaceutical approach to care for patients with LBP.⁴ Due to the unique practice approaches of DCs in the US, an accurate and up-to-date guideline is necessary to inform current US chiropractors of best practices. Because the evidence continues to change, the purpose of this project was to update the clinical practice guideline previously published in 2016.⁴

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METHODS

Ethics

This study was approved by the Institutional Review Board of the Texas Chiropractic College. Panelists

who participated consented to participate in the consensus process and for their names to be included in the publication.

Steering Committee

The Steering Committee (SC) consisted of clinicians and academicians with clinical and research experience with LBP. Their responsibilities were to examine and evaluate new evidence, develop recommendations based on the best available evidence, revise past recommendations based on the panelists' ratings and comments to reach consensus, and update the recommendations.

The SC consisted of 8 DCs, some of whom had additional training in massage and nursing, a psychologist (PhD) who had experience with patients experiencing chronic pain in the Veterans Administration, and a medical physician with experience working with patients with musculoskeletal pain. Six members were in private practice: 2 in the Veterans Administration as clinicians and 2 in health care training institutions. Five DCs were in Clinical Compass leadership positions. The Clinical Compass (formerly the Council on Chiropractic Guidelines and Practice Parameters) is a chiropractic organization that represents US state and national chiropractic associations and the US chiropractic colleges.

Literature Search

A health sciences librarian conducted 2 literature searches, and 2 investigators screened the articles for inclusion.

Search 1. To identify seed documents, we conducted a search of PubMed for publications after the literature search from our 2016 guideline (03/01/2015) for clinical practice guidelines (CPG) for non-drug, non-surgical management of LBP in adults.⁴ The inclusion criteria were as follows: publications from March 1, 2015, to September 1, 2021; English language; non-drug, non-surgical interventions for mechanical LBP in adults; and CPGs. Exclusion criteria were any populations other than non-pregnant adults; only 1 sex included; and restricted to specific local populations or geographic areas (see Supplementary Data for search strategy). We reviewed citations in first-stage documents, and the SC identified relevant papers that were not captured in the first search. We used the 2020 CPG on chiropractic management of adults with chronic musculoskeletal pain as a resource.⁵

Search 2. We searched for topics that were not addressed in detail in the CPGs. For systematic reviews, we used the same search strategy as Search 1 but filtered for "review." We included systematic reviews of original studies. Randomized controlled trials were identified by reference tracking or expert recommendations. At least 2 investigators screened studies for inclusion. Disagreements were resolved by discussion until agreement was reached.

Evaluation of the Quality of the Evidence

We evaluated included articles for quality. Evaluation of CPGs used the Appraisal of Guidelines for Research and Evaluation (AGREE)—Global Rating Scale.⁶ Systematic reviews and randomized trials used the modified Scottish Intercollegiate Guideline Network checklists.⁷ We did not assess the quality of other types of studies; we only identified designs and categorized them as lower level. At least 2 investigators rated each study and discussed differences in ratings until they reached agreement; if they could not reach agreement, a third investigator rated the study to break the tie. Cohort studies, narrative reviews, government reports, books, etc, were not evaluated for quality but categorized as lower-level evidence.

We used the Grading of Recommendations Assessment, Development and Evaluation (GRADE) to assess the overall quality of the supporting evidence for the seed statements.^{8,9} At least 3 investigators performed the GRADE assessment independently. If they disagreed, they resolved the rating by discussion (see Supplementary Data for GRADE rating).

Strength of Recommendations

We used the strength of recommendations (SoR).¹⁰⁻¹² Recommendations were either graded as strong (SoR = 1) or weak (SoR = 2). At least 3 investigators rated the SoR, and if they did not agree, they discussed the differences until agreement was reached.

Seed Statement Development

The 2016 CPG was used as the seed document,⁴ and 2 CPGs^{5,13} were used to revise the seed statements. The SC used an iterative process with revisions, as it related to chiropractic practice in the US.

Consensus Panel

We invited panelists of various disciplines who were experienced in providing care for adults with LBP. Nominees were invited after review and approval by the SC. The consensus panel included a panel of DCs and other health professionals representing practice and academic experience. The panel characteristics may be found in the Supplementary Data.

The Modified Delphi Process

The consensus panel reviewed the previous CPG⁴ and updated seed statements and references. The consensus process was conducted via email. Panelists were de-identified during the rating process to reduce bias. After each round of review, the SC revised statements based on the panelists' ratings and comments. Only items on which there

was disagreement were re-circulated. We used the RAND-UCLA methodology for rating the appropriateness using an ordinal scale of 1 to 9 (highly inappropriate to highly appropriate) to each seed statement.¹⁴ Panelists were emailed a form with each seed statement, the ordinal scale, and a place to make comments. “Appropriateness” was defined as the patient’s expected health benefit being greater than any expected negative consequences by a sufficiently wide margin that it is worth doing without considering cost. We instructed panelists that if they rated a statement as inappropriate (rating 1-3) to provide a reason and a citation from the peer-reviewed literature to support it, if available. Without a reason or citation, the response was considered incomplete and considered a missing value.

Data Analysis

The project coordinator entered all ratings into an SPSS file for median rating and percent agreement. Comments were organized by panelist number and statement number and rating. All ratings and comments remained identified only by a number when circulated to the panelists and the SC. They received the median rating, percent agreement, and comments for each statement. Any statements not reaching 80% agreement were revised by the SC based on the panelists’ comments and were recirculated until the panel reached at least 80% agreement.

Stakeholder Engagement and External Review

We disseminated the seed statements and methods to promote transparency and stakeholder involvement in guideline development. The consensus panel included stakeholders, and we invited public comments using methods we developed for previous projects.^{5,13}

Consensus Rounds

Two modified Delphi consensus rounds were conducted; all 69 panelists completed both. For Round 1, all of the 38 statements but 1 had a mean rating of >80% (median rating = 9 on a 0-9 scale). One statement had a mean percent agreement of <80% (78%). Three statements had a mean percent agreement <90% but were also >80% (84%, 86%, 88%). We conducted Round 2 with the 1 statement not reaching 80% consensus after analyzing the panelists’ comments and revising accordingly. In Round 2, consensus was reached on that statement (mean percent agreement = 87%).

Public Comments

During the comment period (April 2, 2022, to May 2, 2022), an internet link was posted on Facebook (Meta) soliciting comments. We received 30 comments from 6 people; 4 were DCs, 1 was an RN/PhD, and 1 was anonymous. The SC carefully considered all comments and incorporated relevant ones into the final manuscript for purposes of clarification.

RESULTS

Review and Assessment

Literature Search Results. Figure 1 shows the flowchart of the primary literature search. The second search for systematic reviews yielded 138 results, with additional hand search/expert recommendations adding 15 for a total of 153 citations, of which 143 were excluded, leaving 10 systematic reviews. Five randomized trials were identified through reference tracking.

Quality Assessment. Table 1 lists the 14 CPGs included: 12 were rated high-quality using the AGREE–Global Rating Scale¹⁵⁻²⁵ or AGREE-II,^{4,26} and 2 were not rated

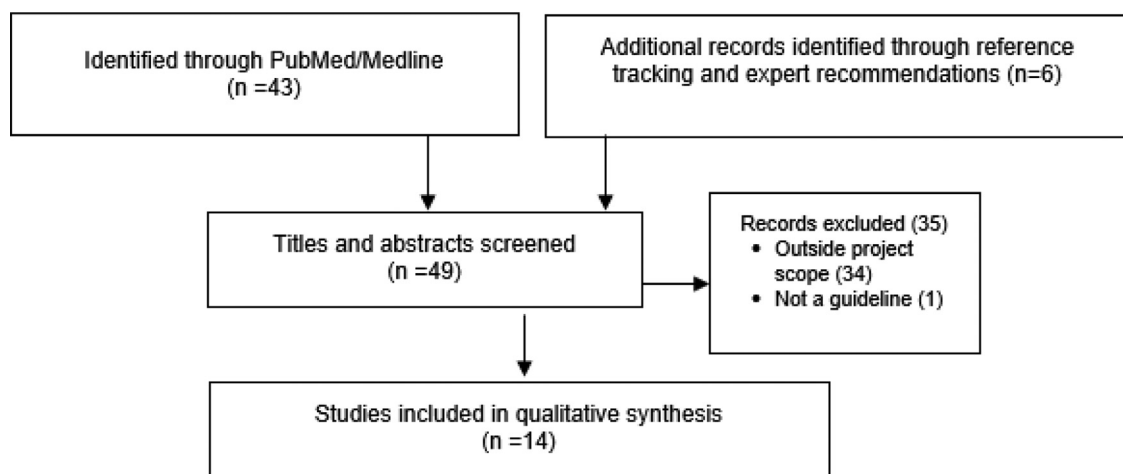


Fig 1. Flow diagram.

Table 1. *Clinical Practice Guidelines Quality Assessment*

Title	First Author	Year	Quality ^a
Spinal Manipulative Therapy and Other Conservative Treatments for Low Back Pain: A Guideline From the Canadian Chiropractic Guideline Initiative	Bussieres ¹⁵	2018	High
International Framework for Red Flags for Potential Serious Spinal Pathologies	Finucane ¹⁶	2020	High
Clinical Practice Guideline: Chiropractic Care for Low Back Pain	Globe ⁴	2016	High ^b
The Global Spine Care Initiative: Care Pathway for People With Spine-Related Concerns	Haldeman ¹⁷	2018	High
The Role of Chiropractic Care in Providing Health Promotion and Clinical Preventive Services for Adult Patients With Musculoskeletal Pain	Hawk ¹³	2021	NR ^c
Best Practices for Chiropractic Management of Patients With Chronic Musculoskeletal Pain: A Clinical Practice Guideline	Hawk ⁵	2020	NR ^c
Non-Invasive and Minimally Invasive Management of Low Back Disorders	Hegmann ¹⁸	2020	High
Diagnostic Tests for Low Back Disorders	Hegmann ¹⁹	2019	High
Core Outcome Measures for Chronic Musculoskeletal pain Research: Recommendations From a Veterans Health Administration Work Group	Kroenke ²⁰	2019	High
Chiropractic Integrated Care Pathway for Low Back Pain in Veterans: Results of a Delphi Consensus Process	Lisi ²¹	2018	High
Low Back Pain and Sciatica in Over 16s: Assessment and Management	NICE ²²	2020	High
ACR Appropriateness Criteria Low Back Pain	Patel ²³	2016	High
Noninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain: A Clinical Practice Guideline From the American College of Physicians	Qaseem ²⁴	2017	High
Clinical Guidelines for Non-Surgical Treatment of Patients With Recent Onset Low Back Pain or Lumbar Radiculopathy	Stoekendahl ²⁵	2018	High

AGREE-GRS, Appraisal of Guidelines for Research and Evaluation—Global Rating Scale; CPG, clinical practice guideline; NICE, National Institute for Health and Clinical Excellence; NR, not rated.

^a Quality was rated via the AGREE-GRS unless otherwise indicated.

^b Quality was rated via the AGREE II instrument by Lin et al.²⁶

^c Quality was not rated because many of the project personnel were authors on the CPG and the document was used as a background resource for this project.

because they were used as background/seed documents and were developed by the group involved in the current study.^{5,13} Table 2 lists the 10 systematic reviews included; all were rated high-quality²⁷⁻³³ or acceptable-quality.³⁴⁻³⁶ Table 3 lists the 5 randomized controlled trials included; all were rated high-quality.³⁷⁻⁴¹

Key Terminology and/or Definitions. Figure 2 lists important terms and definitions related to LBP management, including specific classifications of LBP-related terms.^{13,21,30,36,42-50}

Best Practices for Chiropractic Management of Adult Patients With Mechanical LBP in the US

Informed Consent, Risks, and Benefits: IC1. Informed consent should include direct communication between the doctor and the patient. The DC should explain all procedures,

including examination, diagnosis, and treatment/no treatment options, clearly and in terms the patient understands. Explain both benefits and risks.⁴ Ask the patient if they have any questions; answer the questions and confirm that the patient understands all information communicated. Understanding is essential to shared decision-making.⁴ Record the discussion and patient's consent or declination of treatment in the health record.⁵¹⁻⁵³ (Quality D, SoR 1)

Informed Consent, Risks, and Benefits: IC2. Adhere to local/regional/national legal requirements. Seek advice on compliance from the appropriate authority (eg, malpractice carrier or professional association). (Quality D, SoR 1)

History, Examination, and Special Tests

Diagnostic Considerations for LBP: LBI. The DC should establish a management plan using relevant evidence based

Table 2. *Systematic Review Quality Assessment*

Title	First Author	Year	Quality ^a
Transcutaneous Electrical Nerve Stimulation and Interferential Current Demonstrate Similar Effects in Relieving Acute and Chronic Pain: A Systematic Review With Meta-Analysis	Almeida ³⁴	2018	Acceptable
Effectiveness of Mindfulness-Based Interventions on Pain Intensity in Patients With Chronic Low Back Pain: A Systematic Review	Bahnamiri ²⁷	2021	High
Effects of Low-Level Laser Therapy on Pain in Patients With Musculoskeletal Disorders: A Systematic Review and Meta-Analysis	Clijisen ²⁸	2017	High
Association Between Chiropractic Use and Opioid Receipt Among Patients With Spinal Pain: A Systematic Review and Meta-Analysis	Corcoran ²⁹	2020	High
Multidisciplinary Biopsychosocial Rehabilitation for Chronic Low Back Pain: Cochrane Systematic Review and Meta-Analysis	Kamper ³⁵	2015	Acceptable
Psychological Approaches for The Integrative Care of Chronic Low Back Pain: A Systematic Review And Meta-Analysis	Petrucci ³⁰	2022	High
Noninvasive Nonpharmacological Treatment for Chronic Pain: A Systematic Review	Skelly ³¹	2018	High
A Systematic Review of Mindfulness Practices for Improving Outcomes in Chronic Low Back Pain	Smith ³⁶	2020	Acceptable
Current Evidence for Diagnosis of Common Conditions Causing Low Back Pain: Systematic Review and Standardized Terminology Recommendations	Vining ³²	2019	High
Literature Review and Meta-Analysis of Transcutaneous Electrical Nerve Stimulation in Treating Chronic Back Pain	Wu ³³	2018	High

^a Quality was assessed using a modified Scottish Intercollegiate Guideline Network checklist.

Table 3. *Randomized Controlled Trial Quality Assessment*

Title	First Author	Year	Quality ^a
Reducing Sedentary Behavior to Decrease Chronic Low Back Pain: The Stand Back Randomised Trial	Barone Gibbs ³⁷	2018	High
Effect of Mindfulness-Based Stress Reduction vs CBT or Usual Care on Back Pain and Functional Limitations in Adults With Chronic Low Back Pain: A Randomized Clinical Trial	Cherkin ³⁸	2016	High
Maintenance Care Reduces Days With Pain in Acute Episodes and Increases Pain Free Periods for Dysfunctional Patients With Recurrent and Persistent LBP: Secondary Analysis of a Pragmatic RCT	Eklund ³⁹	2020	High
The Nordic Maintenance Care Program: Effectiveness of Chiropractic Maintenance Care Versus Symptom-Guided Treatment for Recurrent and Persistent Low Back Pain: A Pragmatic Randomized Controlled Trial	Eklund ⁴⁰	2018	High
Dose-Response and Efficacy of Spinal Manipulation for Care of Chronic Low Back Pain: A Randomized Controlled Trial	Haas ⁴¹	2014	High

^a Quality was assessed using a modified Scottish Intercollegiate Guideline Network checklist.

on history, physical examination findings that support a working diagnosis, and differential diagnoses.^{17,21,22,32,54} (Quality B, SoR 1)

Diagnostic Considerations for LBP: LB2. For patients with new episodes of LBP, consider risk stratification for assessing outcomes (eg, STarT Back risk assessment tool).⁵⁵ Management strategies using fewer targeted modalities and procedures may be more appropriate for

low-risk patients, and more intensive targeted treatments for those at higher risk for poor outcomes (eg, multiple therapies, including mind-body approaches, and active therapies are generally favored over passive ones).^{22,55-57} (Quality B, SoR 1)

History: HI. Because psychosocial factors influence pain, ask patients about factors that might delay recovery or amplify pain (eg, mood or sleep disorders, work-related

Acute, subacute, chronic and recurrent pain definitions Acute—symptoms of < 6 weeks' duration. Subacute—symptoms of 6-12 weeks' duration. Chronic—symptoms of more than 12 weeks' duration (ICD-11 definition) ⁴⁴ or pain present on at least half the days during the past 6 months (National Pain Strategy definition). ⁴³ Recurrent/flare-up—return of symptoms similar to original complaint occurring sporadically or as a result of exacerbating factors.
Biopsychosocial intervention: a treatment plan that includes at least one physical component (such as spinal manipulation or exercise) and at least one psychological/social component (such as cognitive behavioral therapy or mindfulness meditation). ³⁰
CBT: Cognitive behavioral therapy, in which unhelpful thought or behavioral patterns are challenged by restructuring thoughts/beliefs and increasing engagement in meaningful activities.
CIH: Complementary and integrative healthcare
Disease prevention model for pain management (developed by the Prevention of Acute and Chronic Pain Working Group of the U.S. Federal Pain Research Strategy) ^{13,42} <i>Primary prevention of pain:</i> prevention of acute pain (example: injury prevention) <i>Secondary prevention of pain:</i> prevention of transition of acute to chronic pain <i>Tertiary prevention of pain:</i> reducing the effect of chronic pain on health and health-related quality of life.
Mindfulness based strategies, including mindfulness-based stress reduction (MBSR) focuses on increasing awareness and acceptance of moment-to-moment experiences including physical discomfort and difficult emotions. It is the practice of conscious awareness of one's own thoughts, then the observation of those thoughts without judging them or experiencing them in a subjective manner. ³⁶
MTB (maximum therapeutic benefit): No additional improvement in the patient's symptoms or condition is expected under the current management plan; consequently, further treatment is unnecessary to prevent an immediate decline in status. ²¹
MTI: Maximum Therapeutic Improvement; MMI (Maximum Medical Improvement) and MTB (Maximum Therapeutic Benefit) may be used synonymously but may be prevalent in a jurisdiction or mandated terminology in a specific legal jurisdiction. ⁴⁵
Pain, Neuropathic: Identified using the following criteria: ⁴⁶ Confirmed pain distribution and sensory dysfunction that are neuroanatomically congruent Confirmed history or presence of a relevant disease or lesion affecting the peripheral or central nervous system A description of burning, shooting, or pricking pain
Pain, Nociceptive: arises from actual or threatened damage to non-neural tissue due to activation of nociceptors. ⁴⁶
Pain, Nociplastic: pain arising from altered nociception without evidence of tissue damage. ^{43,46}
Pain, Central Sensitization: a neurophysiological mechanism, defined as "amplification of neural signaling within the central nervous system that elicits pain hypersensitivity"; potentially explains chronic, non-specific pain.
Red Flags are signs or symptoms or conditions noted in the history or clinical examination that suggest the possibility of serious pathology or illness requiring immediate referral, more extensive evaluation, co-management or present a contraindication to an aspect of the proposed treatment plan.
Yellow Flags are psychosocial factors which may delay recovery and lead to chronicity. ^{49,50}
Self-care/self-management: An active practice which a person can perform at home independently after being provided with appropriate instruction. ⁴⁷
SMT: Spinal manipulative therapy, usually practiced by Doctors of Chiropractic (DC), Doctors of Osteopathic Medicine (DO) or physical therapists. CMT , chiropractic manipulative therapy, is used synonymously. SMT is generally defined as a type of manual therapy in which a biomechanical load is applied to selected spinal joints using short- or long-lever maneuvers which move the joint to its end range of motion and then impulse loading is applied. ⁴⁸ It may be accomplished either manually or assisted by specifically designed instruments and/or mechanical tables.

Fig 2. Key terminology. ICD, International Classification of Diseases.

factors^{49,50}) and helpful factors (eg, positive coping skills and social support).^{32,49,50,54} (Quality B, SoR 2)

History: H2. Obtain a thorough history of the pain symptoms, previous and concurrent treatment, and psychosocial factors to develop an appropriate chiropractic management plan for patients with acute and chronic pain.^{17,56}

The history should include assessment of red and yellow flags, precipitating factors, and pain characteristics.^{16,17,19} (Quality A, SoR 1). See the Supplementary Data for additional information on obtaining a history.

History: H3. Consider "yellow flags," which may predict poorer outcomes or prolonged recovery time. These include concurrent conditions, psychological factors, including beliefs about illness and treatment, attitudes, emotional states, and pain behavior.^{21,56,58,59} (eg, ^{45,58} Current compensation and claims issues, fear-avoidance

behavior, lack of social support, negative affect/mood or depression, pain catastrophizing, and work-related stress). (Quality A, SoR 1)

History: H4. For patients with a new episode of LBP, consider using a risk stratification measure at the initial visit.^{25,37,55,57}

History: H5. Consider referral to a licensed mental health provider for patients with psychological or psychosocial complicating factors for further evaluation and/or a trial of cognitive behavioral therapy or mindfulness-based stress reduction.^{21,27,36,38} (Quality A, SoR 1)

History: H6. Focus the physical examination on current symptoms combined with the short and long-term health history.^{21,60} (Quality C, SoR 2)

Examination: E1. Conduct a physical examination⁶⁰ based on the symptoms and health history, including sites

of primary and secondary symptoms. Assess function and pain, including relevant musculoskeletal and neuromuscular examinations.^{15-17,19,21,60} (Quality B, SoR 1)

Diagnostic Imaging: D1. Do not use imaging routinely to identify the pain source for LBP in the absence of red flags. Consider imaging if red flags are present, which should be evaluated on a case-by-case basis after a thorough history and examination are performed.^{15,16,19} (Quality A, SoR 1)

Diagnostic Imaging: D2. Consider imaging patients under the following circumstances (Quality A, SoR 1)^{4,15,19}: (1) no improvement after a reasonable course (4-6 weeks)²³ of care; (2) red flags on history or physical exam; (3) severe and/or progressive neurologic deficits; (4) severe spinal trauma; and/or (5) suspected severe anatomical deformity.

Diagnostic Imaging: D3. Consider magnetic resonance imaging or computed tomography scans rather than radiographs for patients with chronic LBP who are nonresponsive to conservative care after a 4- to 6-week trial of care and/or conditions accompanied by progressive radiculopathy.^{4,19} Conditions such as spinal stenosis, which may not be detectable with physical examination, may require magnetic resonance imaging for diagnosis.¹⁹ (Quality A, SoR 1)

Absolute and Relative Contraindications to HVLA-SMT

Contraindications: C1. Consider patient presentations (Fig 3)^{4,16,61-63} that factor into clinical decision-making, which may still permit administering a trial of high-velocity, low-amplitude spinal manipulation (HVLA-SMT). Conduct a thorough history (including prior response to care), examination, and informed consent to aid their treatment rationale. Each individual should be managed on a case-by-case basis (see section on interventions).^{64,65} (Quality C, SoR 1)

Contraindications: C2. Consider relative contraindications to HVLA-SMT. Discuss with the patient the possible risks and benefits of treatment before applying the treatment (eg, high-risk pregnancy, prior surgical intervention to the involved area, and history of cancer).^{64,65} (Quality C, SoR 1)

Contraindications: C3. Do not administer HVLA-SMT for conditions considered absolute contraindications. These include health factors, findings, or conditions that are by nature unstable, and manipulation of the involved area may place the patient at undue risks, such as those that significantly weaken bone, neurological, or vascular structure integrity (Fig 4).^{4,17,18,64,65} (Quality C, SoR 1)

Management Considerations

General Pain Management: G1. Educate and encourage the patient to self-manage and use nondrug approaches if possible.^{24,31,43} (Quality A, SoR 1)

General Pain Management: G2. Co-manage patients on prescribed pain medications by collaborating with their prescribing clinician.^{35,66} (Quality A, SoR 1)

Musculoskeletal

- Advanced osteoporosis
- Benign or malignant bone tumors
- Structural instability (examples: unstable spondylolisthesis or post-surgical joint instability)

Inflammatory

- Osteomyelitis
- Rheumatoid arthritis in the active systemic stage, or locally if current inflammation or instability present

Neurologic

- Cauda equina syndrome
- Progressive or sudden neurologic deficit or disease
- Spinal cord tumors with neurological compromise or requiring medical intervention

Hematologic

- Unstable bleeding disorders, including high dose anticoagulant therapy
- Unstable aortic aneurysm

Fig 3. Possible contraindications to high-velocity, low-amplitude spinal manipulation.^{4,16} (Quality B, SoR 1) This list is not comprehensive and there may be other clinical scenarios where treatment with high-velocity, low-amplitude spinal manipulation would not be indicated. These conditions do not all necessarily preclude use of low-force manipulation, mobilization or soft-tissue techniques.^{4,61} (Quality C, SoR 1) The focus of these recommendations is on typical chiropractic care, which often uses high-velocity, low-amplitude spinal manipulation, as well as other techniques such as mobilization and instrument- or table-assisted techniques. All manual therapy approaches should consider potential contraindications.⁶⁶

General Pain Management: G3. Implement active interventions as early as possible and educate them to better engage patients in their care and encourage self-efficacy.²⁵ Passive interventions may be useful in the initial stages of patient care for pain control.^{15,43} (Quality A, SoR 1)

General Pain Management: G4. Combine passive and active interventions, particularly self-care, and include provider reassurance. Educate the patient to use self-care, which may include home care measures such as rest, early return to tolerated activities, stretching, heat and ice, medications, and other therapeutics. Passive approaches may include medication by referral/co-management with a prescribing provider, manual therapy, massage, and physical modalities.^{28,31,33,34} Active and self-care interventions may include exercise,²⁵ healthy diet,⁶⁷ meditation,^{27,30,36,38} yoga,³¹ and other lifestyle changes. (Quality B, SoR 1)

General Management: GM1. Develop patient management decisions based on patient complaints, clinical findings, evidence-based interventions, and the best interests of the patient. Clinician philosophy/attitudes or financial

History	<ul style="list-style-type: none"> • Abdominal aortic aneurysm • Bowel or bladder dysfunction • Cancer/immunosuppression • Confusion/altered consciousness • Connective tissue disease • Progressive muscle weakness or loss of sensation • Osteoporosis/Osteopenia • Recent unexplained weight loss • Severe nocturnal pain • Severe trauma or infection • Potential urinary tract infection • Intravenous drug use • Prolonged corticosteroid use • Back pain not improved after conservative management
Examination	<ul style="list-style-type: none"> • Abnormal sensory, motor, or deep tendon reflexes • Fever > 100°F • Nuchal rigidity • Pain pattern unrelated to movements or activities • Saddle anesthesia • Recent spine surgery

Fig 4. Red flags on history or examination (Quality C, SoR 1).

considerations should not play a role in clinical care recommendations.⁴⁵ (Quality C, SoR 1)

General Management: GM2. Provide a short trial of care to patients with acute pain. Observe if the patient's pain and limitation of function partially or fully resolve, although recurrences may be common.^{15,17,24,25,57,68} (Quality A, SoR 1)

General Management: GM3. Avoid providing inadequate and/or guideline-non-concordant management or delaying early clinical management, which may increase the risk of chronicity and disability.^{18,56} (Quality A, SoR 1)

General Management: GM4. As early as possible, identify patients who may respond poorly in the acute stage and/or those with increased risk factors or concurrent complicating factors for chronicity.^{15,57} (Quality A, SoR 1)

General Management: GM5. Work may be done independently or with a multidisciplinary team for management of pain and functional restoration for patients with acute or chronic LBP.^{21,69} (Quality A, SoR 1)

General Management: GM6. Consider that spinal manipulation for LBP is associated with a reduced likelihood of use of opioid analgesics and adverse drug events.^{3,29,66,70-72} (Quality A, SoR 1)

General Management: GM7. Consider that spinal manipulation for back pain is associated with a reduced likelihood of surgery.^{73,74} (Quality B, SoR 2)

Outcome Assessment

Use validated Patient-Reported Outcome Measures (PROMs) to assess patient symptoms, characteristics, and to assess progress over time (Table 4 shows PROMs for acute and chronic LBP).^{4,20,21,45,75} (Quality A, SoR 1)

Care Pathway

A care pathway for an adult patient with mechanical LBP is shown in Figure 5.

Considerations for frequency and duration of treatment for acute and chronic LBP are seen in Table 5.^{4,13,39-41,45,76,77}

Interventions

Interventions: IN1. Consider active and passive interventions (eg, physical and mind/body) in the management plan.^{15,17,24,78,79} Figure 6 shows recommendations for interventions, based on current evidence.^{15,31} (Quality A, SoR 1)

Interventions: IN2. Choose appropriate active and passive interventions, with passive care being most appropriate for acute conditions but also possibly indicated for chronic LBP. Mind-body approaches and multidisciplinary rehabilitation are used for chronic LBP.^{30,36} (Quality A, SoR 1)

Table 4. PROMs Appropriate for Patients With Uncomplicated LBP

Instrument	Domain	LBP Application	Link to Instrument
NRS	Pain intensity	Acute or chronic	https://europeanpainfederation.eu/measuring-pain-in-the-clinic/
RMDQ	LBP-specific pain and function	Acute or chronic	http://www.rmdq.org/download.htm
ODI	LBP-specific pain and function	Acute or chronic	https://www.ipmhealthcare.com/storage/app/media/Oswestry.pdf
PROMIS instruments	Pain, function, quality of life	Acute or chronic	PROMIS Instruments (assessmentcenter.net)

For patients with uncomplicated, non-radicular spinal pain, clinicians may utilize these PROMs as interim measures to monitor patient progress between full and more thorough re-evaluations (Quality A, SoR 1).

LBP, low back pain; NRS, numeric rating scale; ODI, Oswestry Disability Index; PROM, Patient-Reported Outcome Measures; PROMIS, Patient-Reported Outcomes Measurement Information System; RMDQ, Roland-Morris Disability Questionnaire.

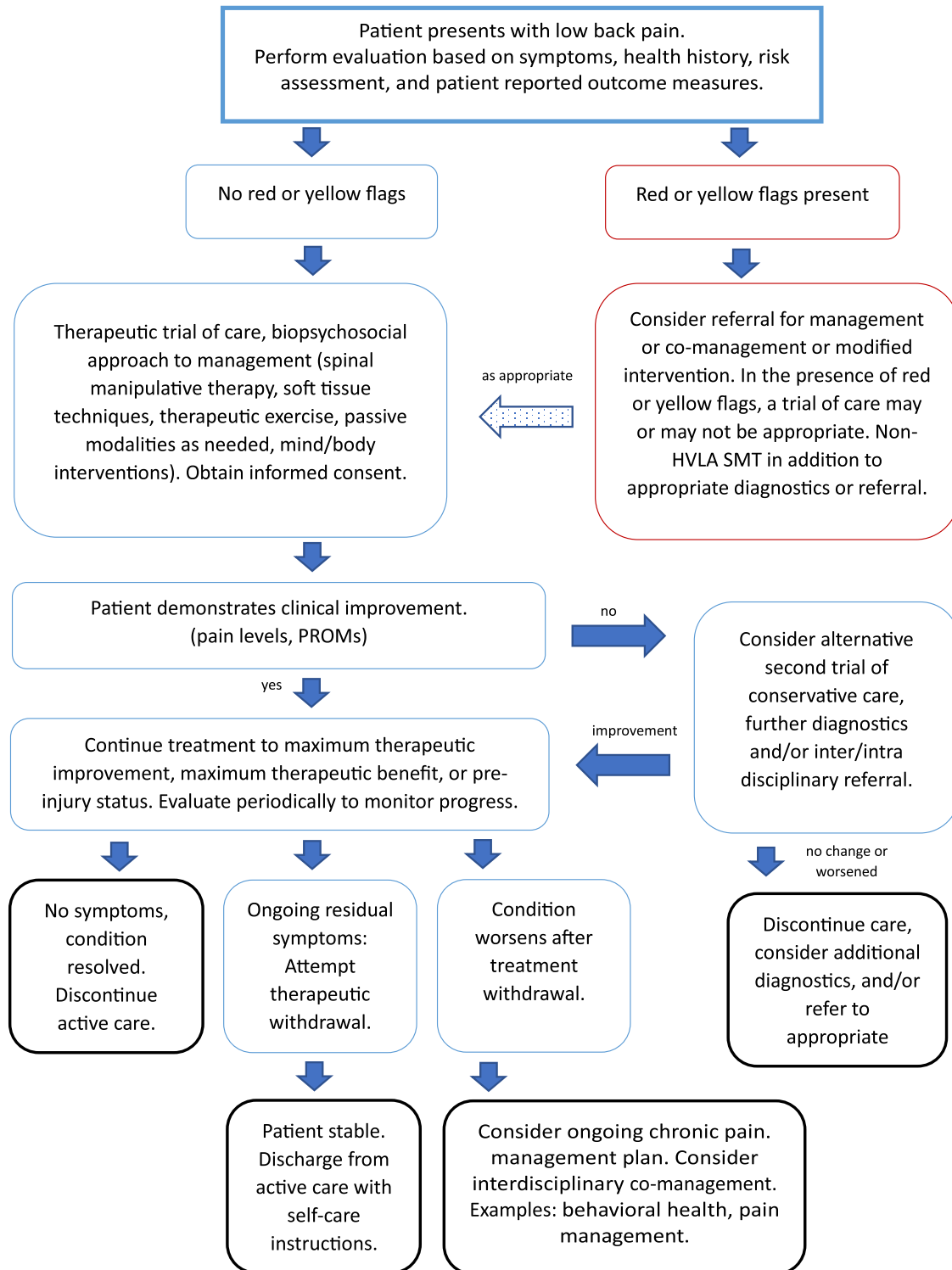


Fig 5. A care pathway for an adult patient with mechanical low back pain.

Table 5. Visit Frequency and Duration of Care for Chiropractic Management of Acute, Subacute, and Chronic/Persistent Low Back Pain (Quality C, SoR 1)

Type of Episode	Number of Treatment Visits	Duration of Care	Re-evaluation Period ^a
Acute and subacute	2-3/wk	2-4 wk	2-4 wk (per trial)
Mild exacerbation	1-6/episode	Per episode	Beginning and end of episode
Moderate or severe exacerbation	2-3/wk	2-4 wk	Every 2-4 wk
Chronic/persistent pain: scheduled interval of ongoing management for secondary and tertiary prevention ^{13,39}	1/mo ^{39,40} ; up to 4/mo, with appropriate documentation ^b	Ongoing	Minimum of every 6 visits, or as needed to document changes ^c

E/M, evaluation and management.

^a Re-evaluation should not be considered synonymous with E/M services. Appropriate use of E/M codes must be supported by documentation of any re-evaluation encounter. Thus, not all re-evaluations support the use of E/M codes for coding/billing purposes.

^b About 3-4 visits/month on an ongoing basis only indicated in exceptional circumstances; 1-2 visits/month may be necessary if care is supported by a well-documented management plan. Support scheduled interval of care with documentation of pain and/or functional improvement or pain and/or functional optimization. This may include but is not limited to the following: (1) substantial symptom recurrence upon treatment withdrawal, form; (2) minimization of dependence on interventions with greater risk(s) of adverse events; and (3) maintained or improved work capacity.

^c Document patient's efforts to comply with self-care recommendations.

Active interventions

Lifestyle advice to stay active; avoid sitting;³⁷ manage weight if obese;⁷⁹ smoking cessation^{78,79}

Psychological/mind-body interventions, including Cognitive Behavioral Therapy and Mindfulness-based Stress Reduction^{17,30,80,81}

Yoga/Qigong (which may also be considered "mind-body" interventions)^{17,80}

Exercise^{17,80}

Passive interventions

Acupuncture^{10,25}

Low-level laser therapy²⁸

Massage^{17,80}

Spinal manipulation/mobilization^{17,80}

Transcutaneous Electrical Nerve Stimulation or interferential current

Combined active and passive

Multidisciplinary rehabilitation

Fig 6. Recommendations for interventions, based on current evidence.^{15,31} (Quality A, SoR 1) Only when used as part of a multimodal approach, at the beginning of treatment to assist the patient in becoming or remaining active.^{33,34}

DISCUSSION

This paper updates the best-practice guideline on chiropractic management of mechanical LBP in adults in the US from the prior iterations.^{4,82} This guideline provides evidence-informed guidance to DCs related to both initial care management and the progression of care throughout an episode of the condition to reduce practice variability among providers while improving outcomes. We identified benchmarks and decision points in care management and provided information related to each issue. Providers can use

this document as a reference point for the care they provide their patients.

This updated CPG condensed the number of recommendations from 51 to 38 while providing more evidence-informed insight into the diagnostic considerations for LBP, including the history and examination and diagnostic imaging. This document provides a more comprehensive description of the conservative management approaches to LBP, including chiropractic approaches and co-management considerations for multidisciplinary care.

This guideline recommends self-care advice/education, multimodal care, spinal manipulation, therapeutic exercise, and collaboration with other professionals. Typically, providers are advised to provide evidence-based information on the patient's condition in terms they can understand; discuss the expected, usually benign treatment course and reassure the patient; provide appropriate condition-specific exercises; promote early return to activities; encourage healthy lifestyle choices and activities of daily living; and provide effective self-management strategies.^{15,21,25,80,83,84}

Studies suggest that patient education can reduce psychological distress associated with LBP but has little effect as a sole intervention on pain and function.⁸⁵⁻⁸⁷ Patient education also appears to reduce imaging rates.⁸⁸ However, patients appear to be most interested in an explanation of what is wrong, how to improve their pain, and in improving their ability to return to performing daily tasks.⁸⁹

This guideline recommends that fewer interventions be provided to low-risk patients and that more intensive targeted treatments be reserved for patients at higher risk for poor outcomes. This suggests that low-risk patients may require only minimal targeted treatment approaches, such as education, manipulation, exercise, and home care advice or perhaps the judicious use of a brief trial of passive therapies. Patients identified with higher risk stratification might

benefit from more intensive care, which might include both multi-modal treatment and co-management by other providers, including treatment such as cognitive behavioral therapy earlier in their treatment course. Therefore, patients who need more care should get more care, and those who need less should get less care.

The CGP recommends that providers encourage and educate patients to assume a role in their care, engage in activities to promote self-management, and try non-drug approaches first. When patients require medications for pain, we encourage DCs to work collaboratively with the patient's prescribing provider. For example, confusion may result when a provider is encouraging a patient not to take medications that another has recommended. Instead, a dialogue between health professionals that encourages cooperation and is in the best interests of the patient should be pursued.

Strengths and Limitations

We used critical appraisal instruments and rigorous consensus methodology, in addition to performing a comprehensive literature search. Our guideline was built on the 2 prior iterations previously published and the 2020 guideline on chiropractic management of chronic musculoskeletal pain, which included chronic LBP and was based on the comprehensive Agency for Healthcare Research and Quality systematic review on that topic.³¹ We included a large multidisciplinary group of experts and public input by soliciting comments from professional organizations and individuals. Furthermore, our recommendations are congruent with other recent CPGs.^{15,17,21,22,24}

Our literature search was limited to papers in the English language, which may have missed other papers that should have been included in our review. While we attempted to better define terminology, including the classification of acute, subacute, and chronic LBP and relied on widely used definitions, these definitions might not have been consistent with definitions described in other CPGs. This guideline did not include a thorough discussion of education for patients with acute or chronic mechanical LBP; therefore, more detailed information about education was not included.^{15,21,25,80,83,84}

Specific contraindications related to non-HVLA manipulation interventions commonly utilized by chiropractors (eg, physiotherapeutic modalities, soft tissue mobilization, exercise) were not included in this CPG. The absence of this discussion specific to these interventions should not infer that those interventions do not have contraindications. Another limitation was that we did not discuss potential causes of LBP, such as vascular concerns that include dissecting aortic aneurysm, which is considered a medical emergency.^{90,91}

There was limited high-quality evidence on dosage for LBP treatment approaches, including spinal manipulation, exercise, and passive modalities. Therefore, this guideline

makes recommendations for treatment frequency and intensity for chiropractic care based on limited evidence. However, the discussion on the topic by the contributors was robust and provided expert consensus-based guidance to stakeholders in the absence of more robust research.

The dosing regimens for therapies for patients presenting with acute, subacute, and chronic LBP were not included. Recent studies^{39,40} have suggested that maintenance care may be more effective than symptom-guided care in reducing the total number of bothersome days of LBP. Our recommendations for treatment dosage did not address maintenance care in asymptomatic patients. Given the scarcity of literature, our paper relied on expert consensus to arrive at supportable recommendations for dosing, including the small population of chronic patients who may benefit from maintenance care. Another limitation of this guideline is that the SC and panel members were largely from the US. Therefore, components of this paper might not be applicable in other regions.

CONCLUSION

This paper updates a previously published evidence-based guideline, which recommends that appropriate conservative management approaches emphasize active care combined with multimodal care, including spinal manipulation for adults with mechanical LBP.

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SUPPLEMENTARY MATERIALS

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Practical Applications

- Clear, pragmatic, and practical recommendations for management of mechanical low back pain are needed.
- This guideline can assist clinicians, payors, regulators, and other health care providers in identifying and implementing appropriate chiropractic care in patients with low back pain.
- Quality of evidence and strength of recommendations were included, as well as a useful clinical care pathway figure.

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