Policy Number	THE803.016
Policy Effective Date	11/15/2024

Manipulation Under Anesthesia

Table of Contents
Coverage
Policy Guidelines
Description
Rationale
Coding
References
Policy History

Related Policies (if applicable)
None

Disclaimer

Carefully check state regulations and/or the member contract.
Each benefit plan, summary plan description or contract defines which services are covered, which services are excluded, and which services are subject to dollar caps or other limitations, conditions or exclusions. Members and their providers have the responsibility for consulting the member's benefit plan, summary plan description or contract to determine if there are any exclusions or other benefit limitations applicable to this service or supply. **If there is a discrepancy between a Medical Policy and a member's benefit plan, summary plan description or contract, the benefit plan, summary plan description or contract will govern.**

Legislative Mandates

EXCEPTION: For Illinois only: Illinois Public Act 103-0458 [Insurance Code 215 ILCS 5/356z.61] (HB3809 Impaired Children) states all group or individual fully insured PPO, HMO, POS plans amended, delivered, issued, or renewed on or after January 1, 2025 shall provide coverage for therapy, diagnostic testing, and equipment necessary to increase quality of life for children who have been clinically or genetically diagnosed with any disease, syndrome, or disorder that includes low tone neuromuscular impairment, neurological impairment, or cognitive impairment.

Coverage

Spinal manipulation under any kind of anesthesia, with or without manipulation of other joints (e.g., hip joint), **is considered experimental, investigational and/or unproven** for treatment of:
1. Chronic spinal pain (cranial, cervical, thoracic, lumbar), and
2. Chronic sacroiliac and pelvic pain.

Spinal manipulation and manipulation of other joints under anesthesia involving serial (multiple) treatment sessions **is considered experimental, investigational and/or unproven**.

Manipulation under anesthesia involving multiple body joints **is considered experimental, investigational and/or unproven** for treatment of chronic pain.

Policy Guidelines

This policy does not address manipulation under anesthesia for fractures, completely dislocated joints, adhesive capsulitis (e.g., frozen shoulder), and/or fibrosis of a joint that may occur following total joint replacement.

Description

Manipulation under anesthesia (MUA) consists of a series of mobilization, stretching, and traction procedures performed while the patient is sedated (usually with general anesthesia or moderate sedation).

Manipulation Under Anesthesia
Manipulation is intended to break up fibrous and scar tissue to relieve pain and improve range of motion. (1) Anesthesia or sedation is used to reduce pain, spasm, and reflex muscle guarding that may interfere with the delivery of therapies and to allow the therapist to break up joint and soft tissue adhesions with less force than would be required to overcome patient resistance or apprehension. MUA is generally performed with an anesthesiologist in attendance. MUA is an accepted treatment for isolated joint conditions, such as arthrofibrosis of the knee and adhesive capsulitis. It is also used to reduce fractures (e.g., vertebral, long bones) and dislocations.

MUA has been proposed as a treatment modality for acute and chronic pain conditions, particularly of the spine, when standard care, including manipulation, and other conservative measures have failed. MUA of the spine has been used in various forms since the 1930s. Complications from general anesthesia and forceful long-lever, high-amplitude nonspecific manipulation procedures led to decreased use of the procedure in favor of other therapies. MUA was modified and revived in the 1990s. This revival has been attributed to increased interest in spinal manipulative therapy and the advent of safer, shorter-acting anesthesia agents used for conscious sedation.

<u>MUA Administration</u>
MUA of the spine is described as follows: after sedation, a series of mobilization, stretching, and traction procedures to the spine and lower extremities are performed and may include passive stretching of the gluteal and hamstring muscles with straight-leg raise, hip capsule stretching and mobilization, lumbosacral traction, and stretching of the lateral abdominal and paraspinal muscles. (1) After the stretching and traction procedures, spinal manipulative therapy is delivered with high-velocity, short-amplitude thrust applied to a spinous process by hand, while the upper torso and lower extremities are stabilized. Spinal manipulative therapy

may also be applied to the thoracolumbar or cervical area when necessary to address low back pain.

MUA takes 15 to 20 minutes, and after recovery from anesthesia, the patient is discharged with instructions to remain active and use heat or ice for short-term analgesic control. Some practitioners recommend performing the procedure on 3 or more consecutive days for best results. Care after MUA may include 4 to 8 weeks of active rehabilitation with manual therapy, including spinal manipulative therapy and other modalities. Manipulation has also been performed after injection of local anesthetic into lumbar zygapophyseal (facet) and/or sacroiliac joints under fluoroscopic guidance (manipulation under joint anesthesia/analgesia) and after epidural injection of corticosteroid and local anesthetic (manipulation postepidural injection). Spinal MUA has also been combined with other joint manipulation during multiple sessions. Together, these therapies may be referred to as medicine-assisted manipulation.

Regulatory Status
Manipulative procedures are not subject to regulation by the U.S. Food and Drug Administration.

Rationale

This medical policy was created in 1996 and has been updated regularly with searches of the PubMed database. The most recent literature update was performed through February 24, 2023.

Medical policies assess the clinical evidence to determine whether the use of technology improves the net health outcome. Broadly defined, health outcomes are the length of life, quality of life (QOL), and ability to function-including benefits and harms. Every clinical condition has specific outcomes that are important to patients and managing the course of that condition. Validated outcome measures are necessary to ascertain whether a condition improves or worsens; and whether the magnitude of that change is clinically significant. The net health outcome is a balance of benefits and harms.

To assess whether the evidence is sufficient to draw conclusions about the net health outcome of technology, two domains are examined: the relevance, and quality and credibility. To be relevant, studies must represent one or more intended clinical use of the technology in the intended population and compare an effective and appropriate alternative at a comparable intensity. For some conditions, the alternative will be supportive care or surveillance. The quality and credibility of the evidence depend on study design and conduct, minimizing bias and confounding that can generate incorrect findings. The randomized controlled trial (RCT) is preferred to assess efficacy; however, in some circumstances, nonrandomized studies may be adequate. RCTs are rarely large enough or long enough to capture less common adverse events and long-term effects. Other types of studies can be used for these purposes and to assess generalizability to broader clinical populations and settings of clinical practice.

Manipulation Under Anesthesia (MUA)

Clinical Context and Therapy Purpose

The purpose of MUA is to provide a treatment option that is an alternative to or an improvement on existing therapies, such as conservative management, in individuals with chronic spinal, sacroiliac, or pelvic pain.

The following PICO was used to select literature to inform this policy.

Populations

The relevant population of interest is individuals with chronic spinal, sacroiliac, or pelvic pain.

Interventions

The therapy being considered is MUA.

Manipulation under anesthesia consists of a series of mobilization, stretching, and traction procedures performed while the patient is sedated (usually with general anesthesia or moderate sedation). Manipulation under anesthesia takes 15 to 20 minutes, and after recovery from anesthesia the patient is discharged with instructions to remain active and use heat or ice for short-term analgesic control.

Comparators

Comparators of interest include conservative management.

Conservative management includes steroid regimens, blood pressure medication, muscle relaxers, and physical therapy.

Outcomes

The general outcomes of interest are symptoms, functional outcomes, QOL, and treatment-related morbidity.

The existing literature evaluating manipulation under anesthesia as a treatment for chronic spinal, sacroiliac, or pelvic pain has varying lengths of follow-up, ranging from 2 weeks to 6 months. While studies described below all reported at least 1 outcome of interest, longer follow-up was necessary to fully observe outcomes. Therefore, 6 months of follow-up is considered necessary to demonstrate efficacy.

Table 1 summarizes the patient-reported outcome measures described in this policy.

Table 1. Patient Self-Administered Outcome Measure Tools

Name	Description	Scoring	MCID
Numeric Pain Scale (2)	Numbered scale by which patients rate	0-10 scale: • 10=excruciating pain	Reduction of ≥2 points (≈30%)

	their pain, similar to VAS	• 0=no pain	to be clinically important
Roland-Morris Disability Questionnaire (3)	24 questions that measure low back pain-related disability	"Yes" answers are totaled to determine disability (1-24) Score of ≥14 represents significant disability	Change of ≥4 points required for clinically applicable change to be measured accurately
Bournemouth Questionnaire (4)	7-question, multi-dimensional tool to assess outcome of care in a routine clinical setting Takes into account cognitive and affective aspects of pain Two versions: low back pain and nonspecific neck pain	Each question rated on a numeric rating scale from 0 to 10: • 0=much better • 5=no change • 10=much worse Scores are totaled, for minimum of 0 and maximum of 70	Percentage improvement of 47% in back pain and 34% in neck pain
Patient's Global Impression of Change (4)	7-point scale of how a patient perceives the efficacy of treatment, a rating of overall improvement from baseline	Scale of 1 to 7: • 1=no change or condition is worse • 2=almost the same • 3=a little better, but no noticeable change • 4=somewhat better, but no real difference • 5=moderately better, slight noticeable change • 6=better, definite improvement with real difference	Clinically relevant improvement, response of ±6

		• 7=a great deal better, considerable improvement	

MCID: minimal clinically important difference; VAS: visual analog scale.

Study Selection Criteria

Methodologically credible studies were selected using the following principles:

- To assess efficacy outcomes, comparative controlled prospective trials were sought, with a preference for RCTs;
- In the absence of such trials, comparative observational studies were sought, with a preference for prospective studies;
- To assess long-term outcomes and adverse events, single-arm studies that capture longer periods of follow-up and/or larger populations were sought;
- Studies with duplicative or overlapping populations were excluded.

Dagenais et al. (2008) conducted a comprehensive review of the history of MUA or medicine-assisted manipulation and the published experimental literature. (5) They noted that there was no research to confirm theories about a mechanism of action for these procedures and that the only RCT identified was published in 1971 when the techniques for spinal manipulation differed from those used presently. The possibility of serious complications related to manipulative force is also noted, including reported cases of cauda equina syndrome, paralysis, and vertebral fracture and dislocation; the authors state that such complications may be more likely with older techniques, but otherwise note that most reported studies do not describe safety outcomes.

Nonrandomized Comparative Studies

No high-quality RCTs have been identified. A comprehensive review of the literature by Digiorgi (2013) (6) described studies by Kohlbeck et al. (2005) (7) and Palmieri and Smoyak (2002) (3) as being the best evidence available for medicine-assisted manipulation and MUA of the spine.

Kohlbeck et al. (2005) reported on a nonrandomized comparative study that included 68 patients with chronic low back pain. (7) All patients received an initial 4- to 6-week trial of spinal manipulation therapy, after which 42 patients received supplemental intervention with MUA and 26 continued with spinal manipulative therapy. Low back pain and disability measures favored the MUA group over the spinal manipulative therapy only group at 3 months (adjusted mean difference on a 100-point scale, 4.4 points; 95% confidence interval [CI], -2.2 to 11.0). This difference attenuated at 1 year (adjusted mean difference, 0.3 points; 95% CI, -8.6 to 9.2). The relative odds of experiencing a 10-point improvement in pain and disability favored the MUA group at 3 months (odds ratio [OR], 4.1; 95% CI, 1.3 to 13.6) and at 1 year (OR=1.9; 95% CI, 0.6 to 6.5).

Palmieri and Smoyak (2002) evaluated the efficacy of self-reported questionnaires to study MUA in a convenience sample of 87 subjects from 2 ambulatory surgery centers and 2

chiropractic clinics. (3) Thirty-eight patients with low back pain received MUA and 49 received traditional chiropractic treatment. A numeric pain scale and the Roland-Morris Disability Questionnaire were administered at baseline, after the procedure, and 4 weeks later. Average pain scale scores in the MUA group decreased by 50% and by 26% in the traditional treatment group; Roland-Morris Disability Questionnaire scores decreased by 51% and 38%, respectively. Although the authors concluded that the study supported the need for large-scale studies on MUA and that the assessments are easily administered and dependable, no large-scale studies comparing MUA with traditional chiropractic treatment have been identified.

Observational Studies

Peterson et al. (2014) reported on a prospective study of 30 patients with chronic pain (17 low back, 13 neck) who underwent a single MUA session with follow-up at 2 and 4 weeks. (8) The primary outcome measure was the Patient's Global Impression of Change. At 2 weeks, 52% of the patients reported clinically relevant improvement (better or much better), with 45.5% improved at 4 weeks. There was a statistically significant reduction in numeric rating scale scores at 4 weeks ($p=0.01$), from a mean baseline score of 4.0 to 3.5 at 2 weeks post-MUA. Bournemouth Questionnaire scores improved from 24.17 to 20.38 at 2 weeks ($p=0.008$) and to 19.45 at 4 weeks ($p=0.001$). This study lacked a sham group to control for a potential placebo effect. Also, the clinical significance of improved numeric rating scale and Bournemouth Questionnaire scores is unclear, although Hurst and Bolton (2004) described the Bournemouth Questionnaire as a percentage improvement of 47% in back pain and 34% in neck pain. (4)

West et al. (1999) reported on a series of 177 patients with pain arising from the cranial, cervical, thoracic, and lumbar spine, as well as the sacroiliac and pelvic regions who had failed conservative and surgical treatment. (9) Patients underwent 3 sequential manipulations with intravenous sedation followed by 4 to 6 weeks of spinal manipulation and therapeutic modalities; all had 6 months of follow-up. On average, visual analog scale ratings improved by 62% in patients with cervical pain and by 60% in patients with lumbar pain. Dougherty et al. (2004) retrospectively reviewed outcomes of 20 cervical and 60 lumbar radiculopathy patients who underwent spinal manipulation after epidural injection. (10) After epidural injection of lidocaine (guided fluoroscopically or with computed tomography), methylprednisolone acetate flexion distraction mobilization and then high-velocity, low-amplitude spinal manipulation were delivered to the affected spinal regions. Outcome criteria were empirically defined as significant improvement, temporary improvement, or no change. Among lumbar spine patients, 22 (37%) noted significant improvement, 25 (42%) reported temporary improvement, and 13 (22%) no change. Among patients receiving cervical epidural injection, 10 (50%) had significant improvement, 6 (30%) had temporary relief, and 4 (20%) had no change.

The only study of manipulation under joint anesthesia or analgesia found had 4 subjects; it was reported by Dreyfuss et al. (1995). (11) Later, Michaelsen (2000) noted that joint-related MUA should be viewed with "guarded optimism because its success is based solely on anecdotal experience." (12)

Table 2. Summary of Characteristics of Key Observational Studies of Manipulation under Anesthesia

Study	Study Type	Country	Dates	Participants	Treatment	Follow-Up
Peterson (2014) (8)	Prospective	Switzerland	NR	Patients (N=30) with chronic pain who underwent single MUA session	MUA for those with low back pain (n=17); MUA for those with neck pain (n=13)	2 and 4 weeks
West (1999) (9)	Case series	US	July 1995-Feb 1997	177 patients with pain arising from the cranial, cervical, thoracic, and lumbar spine, as well as the sacroiliac and pelvic regions who had failed conservative and surgical treatment	Patients underwent 3 sequential manipulations with intravenous sedation followed by 4 to 6 weeks of spinal manipulation and therapeutic modalities	6 months
Dougherty (2004) (10)	Retrospective	US	Nov 1996-Nov 2000	20 cervical and 60 lumbar radiculopathy patients who underwent spinal manipulation after epidural injection. The patients ranged in age from 21-76 years old with an average age of 43 years. Forty-three percent of the patients were female and	Following epidural injection of lidocaine (guided fluoro-scopically or with computed tomography), methyl-prednisolone acetate flexion distraction mobilization and high-velocity, low-amplitude spinal manipulation	1 year

				57% were male	were delivered to the affected spinal regions	

MUA: manipulation under anesthesia; N: number(s); NR: not reported; US: United States.

Table 3. Summary of Results of Key Observational Studies of Manipulation under Anesthesia

Study	Improvement as Reported by Participant	Bournemouth Questionnaire score	Patient's Global Impression of Change
Peterson (2014) (8)			
Baseline		24.17	
2-weeks post		20.38 (p=0.008)	
4-weeks post		19.45 (p=0.001)	
"better or much better" reported at 2 weeks post			52%
"better or much better" reported at 4 weeks post			45.5%
West (1999) (9)			
% of cervical patients with improvement			62%
% of lumbar patients with improvement			60%
Dougherty (2004) (10)			
Lumbar spine patients			
% noting significant improvement	22 (37%)		
% noting temporary improvement	25 (42%)		
% noting no improvement	13 (22%)		
Patients receiving cervical epidural injection			
% noting significant improvement	10 (50%)		
% noting temporary improvement	6 (30%)		
% noting no improvement	4 (20%)		

Summary of Evidence

For individuals who have chronic spinal, sacroiliac, or pelvic pain who receive manipulation under anesthesia (MUA), the evidence includes case series, observational studies, and nonrandomized comparative studies. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. Scientific evidence on spinal MUA, spinal manipulation with joint anesthesia, and spinal manipulation after epidural anesthesia and corticosteroid injection is very limited. No randomized controlled trials have been identified.

Evidence on the efficacy of MUA over several sessions or for multiple joints is also lacking. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Practice Guidelines and Position Statements

American Association of Manipulation Under Anesthesia Providers

In 2014, the American Association of Manipulation Under Anesthesia Providers published consensus-based guidelines for the practice and performance of MUA. (13) The guidelines included patient selection criteria (see below), establishing medical necessity, frequency and follow-up procedures, parameters for determining MUA progress, general post-MUA therapy, and safety. The guidelines recommended 3 consecutive days of treatment, based on the premise that serial procedures allow a gentler yet effective treatment plan with better control of biomechanical force. The guidelines also recommended follow-up therapy without anesthesia over 8 weeks after MUA that includes all fibrosis release and manipulative procedures performed during the MUA procedure to help prevent re-adhesion.

Patient selection criteria include, but are not limited to, the following:

- "The patient has undergone an adequate trial of appropriate care...and continues to experience intractable pain, interference to activities of daily living, and/or biomechanical dysfunction."
- "Sufficient care has been rendered prior to recommending manipulation under anesthesia. A sufficient time period is usually considered a minimum of 4-8 weeks, but exceptions may apply depending on the patient's individual needs...."
- "Physical medicine procedures have been utilized in a clinical setting during the 6-8 week period prior to recommending manipulation under anesthesia."
- "Diagnosed conditions must fall within the recognized categories of conditions responsive to manipulation under anesthesia. The following disorders are classified as acceptable conditions for utilization of manipulation under anesthesia:
    1. "Patients for whom manipulation of the spine or other articulations is the treatment of choice; however, the patient's pain threshold inhibits the effectiveness of conservative manipulation."
    2. "Patients for whom manipulation of the spine or other articulations is the treatment of choice; however, due to the extent of the injury mechanism, conservative manipulation has been minimally effective...and a greater degree of movement of the affected joint(s) is needed to obtain patient progress."
    3. "Patients for whom manipulation of the spine or other articulations is the treatment of choice by the doctor; however due to the chronicity of the problem, and/or the fibrous tissue adhesions present, in-office manipulation has been incomplete and the plateau in the patient's improvement is unsatisfactory."
    4. "When the patient is considered for surgical intervention, MUS is an alternative and/or an interim treatment and may be used as a therapeutic and/or diagnostic tool in the overall consideration of the patient's condition."
    5. "When there are no better treatment options available for the patient in the opinions of the treating doctor and patient." (13)

Ongoing and Unpublished Clinical Trials

There were no ongoing or unpublished trials regarding this policy as of February 2023.

Coding

Procedure codes on Medical Policy documents are included **only** as a general reference tool for each policy. **They may not be all-inclusive.**

The presence or absence of procedure, service, supply, or device codes in a Medical Policy document has no relevance for determination of benefit coverage for members or reimbursement for providers. **Only the written coverage position in a Medical Policy should be used for such determinations.**

Benefit coverage determinations based on written Medical Policy coverage positions must include review of the member's benefit contract or Summary Plan Description (SPD) for defined coverage vs. non-coverage, benefit exclusions, and benefit limitations such as dollar or duration caps.

CPT Codes	00640, 21073, 22505, 23700, 24300, 26340, 27275, 27570, 27860
HCPCS Codes	None

*Current Procedural Terminology (CPT®) ©2023 American Medical Association: Chicago, IL.

References

1. Kohlbeck FJ, Haldeman S. Medication-assisted spinal manipulation. Spine J. 2002; 2(4):288-302. PMID 14589481
2. Farrar JT, Young JP, LaMoreaux L, et al. Clinical importance of changes in chronic pain intensity measured on an 11-point numerical pain rating scale. Pain. Nov 2001; 94(2):149-158. PMID 11690728
3. Palmieri NF, Smoyak S. Chronic low back pain: a study of the effects of manipulation under anesthesia. J Manipulative Physiol Ther. Oct 2002; 25(8):E8-E17. PMID 12381983
4. Hurst H, Bolton J. Assessing the clinical significance of change scores recorded on subjective outcome measures. J Manipulative Physiol Ther. Jan 2004; 27(1):26-35. PMID 14739871
5. Dagenais S, Mayer J, Wooley JR, et al. Evidence-informed management of chronic low back pain with medicine-assisted manipulation. Spine J. Jan-Feb 2008; 8(1):142-149. PMID 18164462
6. Digiorgi D. Spinal manipulation under anesthesia: a narrative review of the literature and commentary. Chiropr Man Therap. May 14 2013; 21(1):14. PMID 23672974
7. Kohlbeck FJ, Haldeman S, Hurwitz EL, et al. Supplemental care with medication-assisted manipulation versus spinal manipulation therapy alone for patients with chronic low back pain. J Manipulative Physiol Ther. May 2005; 28(4):245-252. PMID 15883577
8. Peterson CK, Humphreys BK, Vollenweider R, et al. Outcomes for chronic neck and low back pain patients after manipulation under anesthesia: a prospective cohort study. J Manipulative Physiol Ther. Jul-Aug 2014; 37(6):377-382. PMID 24998720
9. West DT, Mathews RS, Miller MR, et al. Effective management of spinal pain in one hundred seventy-seven patients evaluated for manipulation under anesthesia. J Manipulative Physiol Ther. Jun 1999; 22(5):299-308. PMID 10395432

10. Dougherty P, Bajwa S, Burke J, et al. Spinal manipulation postepidural injection for lumbar and cervical radiculopathy: a retrospective case series. J Manipulative Physiol Ther. Sep 2004; 27(7):449-456. PMID 15389176
11. Dreyfuss P, Michaelsen M, Horne M. MUJA: manipulation under joint anesthesia/analgesia: a treatment approach for recalcitrant low back pain of synovial joint origin. J Manipulative Physiol Ther. Oct 1995; 18(8):537-546. PMID 8583177
12. Michaelsen MR. Manipulation under joint anesthesia/analgesia: a proposed interdisciplinary treatment approach for recalcitrant spinal axis pain of synovial joint origin. J Manipulative Physiol Ther. Feb 2000; 23(2):127-129. PMID 10714542
13. Gordon R, Cremata E, Hawk C. Guidelines for the practice and performance of manipulation under anesthesia. Chiropr Man Therap. Feb 03 2014; 22(1):7. PMID 24490957

Centers for Medicare and Medicaid Services (CMS)

The information contained in this section is for informational purposes only. HCSC makes no representation as to the accuracy of this information. It is not to be used for claims adjudication for HCSC Plans.

The Centers for Medicare and Medicaid Services (CMS) does not have a national Medicare coverage position. Coverage may be subject to local carrier discretion.

A national coverage position for Medicare may have been developed since this medical policy document was written. See Medicare's National Coverage at <https://www.cms.hhs.gov>.

Policy History/Revision

Date	Description of Change
11/15/2024	Reviewed. No changes.
12/01/2023	Document updated with literature review. Coverage unchanged. Reference 1 added.
08/15/2022	Reviewed. No changes.
09/01/2021	Document updated with literature review. Coverage unchanged. References 1 and 3 added, one reference removed.
07/15/2020	Reviewed. No changes.
08/01/2019	Document updated with literature review. Coverage unchanged. No new references added.
06/15/2018	Reviewed. No changes.
12/01/2017	Document updated with literature review. Coverage unchanged.
09/01/2016	Reviewed. No changes.
06/15/2015	Document updated with literature review. Coverage unchanged.
07/01/2014	Reviewed. No changes.
01/15/2013	Document updated with literature review. Document completely revised and title changed. The following Coverage change(s) were made: 1) Joints other than the spine, and MUA over multiple sessions or for multiple joints are

	considered experimental, investigational and unproven; 3) Detail was added describing spinal manipulation procedures.
06/01/2008	Policy reviewed without literature review; new review date only.
04/01/2007	Revised/updated entire document
01/23/2004	Revised/updated entire document
05/01/1996	New medical document