Manipulation Under Anesthesia

Policy Number: CS075.M
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Instructions for Use

Table of Contents Page

Related Community Plan Policies
- Manipulative Therapy
- Outpatient Surgical Procedures – Site of Service

Commercial Policy
- Manipulation Under Anesthesia

Medicare Advantage Coverage Summary
- Orthopedic Procedures, Devices and Products

Application

This Medical Policy does not apply to the states listed below; refer to the state-specific policy/guideline, if noted:

State	Policy/Guideline
Indiana	Manipulation Under Anesthesia (for Indiana Only)
Kentucky	Manipulation Under Anesthesia (for Kentucky Only)
Louisiana	Manipulation Under Anesthesia (for Louisiana Only)
Mississippi	Manipulation Under Anesthesia (for Mississippi Only)
Nebraska	Manipulation Under Anesthesia (for Nebraska Only)
New Jersey	Manipulation Under Anesthesia (for New Jersey Only)
North Carolina	Manipulation Under Anesthesia (for North Carolina Only)
Pennsylvania	Manipulation Under Anesthesia (for Pennsylvania Only)
Tennessee	Manipulation Under Anesthesia (for Tennessee Only)

Coverage Rationale

Manipulation under anesthesia (MUA) is proven and medically necessary for:
- Knee joint for arthrofibrosis following total knee arthroplasty, knee surgery, or fracture
- Shoulder joint for adhesive capsulitis (frozen shoulder)

MUA is unproven and not medically necessary for all other conditions (whether for single or serial manipulations) including but not limited to the following, due to insufficient evidence of efficacy:
- Ankle
- Finger
- Hip joint or adhesive capsulitis of the hip
- Knee joint - any condition other than for arthrofibrosis following total knee arthroplasty, knee surgery, or fracture

- Pelvis
- Shoulder - any condition other than adhesive capsulitis (frozen shoulder)
- Spine
- Temporomandibular joint (TMJ)
- Toe
- Wrist

This policy does not apply to the following:
- Manipulation of the finger on the day following the injection of collagenase clostridium histolyticum (Xiaflex®) to treat Dupuytren's contracture
- Closed reduction of a fracture or joint dislocation unless specified
- Elbow joint for arthrofibrosis following elbow surgery or fracture

Definitions

Arthrofibrosis: A complication of injury or trauma where an excessive scar tissue response leads to painful restriction of joint motion, with scar tissue forming within the joint and surrounding soft tissue spaces and persisting despite rehabilitation exercises and stretches (International Pain Foundation).

Applicable Codes

The following list(s) of procedure and/or diagnosis codes is provided for reference purposes only and may not be all inclusive. Listing of a code in this policy does not imply that the service described by the code is a covered or non-covered health service. Benefit coverage for health services is determined by federal, state, or contractual requirements and applicable laws that may require coverage for a specific service. The inclusion of a code does not imply any right to reimbursement or guarantee claim payment. Other Policies and Guidelines may apply.

CPT Code	Description
21073	Manipulation of temporomandibular joint(s) (TMJ), therapeutic, requiring an anesthesia service (i.e., general or monitored anesthesia care)
22505	Manipulation of spine requiring anesthesia, any region
23700	Manipulation under anesthesia, shoulder joint, including application of fixation apparatus (dislocation excluded)
25259	Manipulation, wrist, under anesthesia
26340	Manipulation, finger joint, under anesthesia, each joint
27198	Closed treatment of posterior pelvic ring fracture(s), dislocation(s), diastasis or subluxation of the ilium, sacroiliac joint, and/or sacrum, with or without anterior pelvic ring fracture(s) and/or dislocation(s) of the pubic symphysis and/or superior/inferior rami, unilateral or bilateral; with manipulation, requiring more than local anesthesia (i.e., general anesthesia, moderate sedation, spinal/epidural)
27275	Manipulation, hip joint, requiring general anesthesia
27570	Manipulation of knee joint under general anesthesia (includes application of traction or other fixation devices)
27860	Manipulation of ankle under general anesthesia (includes application of traction or other fixation apparatus)

HCPCS Code	Description
D7830	Manipulation under anesthesia

Diagnosis Code	Description
Knee	
M24.661	Ankylosis, right knee
M24.662	Ankylosis, left knee
M24.669	Ankylosis, unspecified knee
Pelvis	
M99.14	Subluxation complex (vertebral) of sacral region
S32.10XA	Unspecified fracture of sacrum, initial encounter for closed fracture
S32.111A	Minimally displaced Zone I fracture of sacrum, initial encounter for closed fracture
S32.112A	Severely displaced Zone I fracture of sacrum, initial encounter for closed fracture
S32.119A	Unspecified Zone I fracture of sacrum, initial encounter for closed fracture
S32.121A	Minimally displaced Zone II fracture of sacrum, initial encounter for closed fracture
S32.122A	Severely displaced Zone II fracture of sacrum, initial encounter for closed fracture
S32.129A	Unspecified Zone II fracture of sacrum, initial encounter for closed fracture
S32.131A	Minimally displaced Zone III fracture of sacrum, initial encounter for closed fracture
S32.132A	Severely displaced Zone III fracture of sacrum, initial encounter for closed fracture
S32.139A	Unspecified Zone III fracture of sacrum, initial encounter for closed fracture
S32.14XA	Type 1 fracture of sacrum, initial encounter for closed fracture
S32.15XA	Type 2 fracture of sacrum, initial encounter for closed fracture
S32.16XA	Type 3 fracture of sacrum, initial encounter for closed fracture
S32.17XA	Type 4 fracture of sacrum, initial encounter for closed fracture
S32.19XA	Other fracture of sacrum, initial encounter for closed fracture
S32.2XXA	Fracture of coccyx, initial encounter for closed fracture
S32.301A	Unspecified fracture of right ilium, initial encounter for closed fracture
S32.302A	Unspecified fracture of left ilium, initial encounter for closed fracture
S32.309A	Unspecified fracture of unspecified ilium, initial encounter for closed fracture
S32.311A	Displaced avulsion fracture of right ilium, initial encounter for closed fracture
S32.312A	Displaced avulsion fracture of left ilium, initial encounter for closed fracture
S32.313A	Displaced avulsion fracture of unspecified ilium, initial encounter for closed fracture
S32.391A	Other fracture of right ilium, initial encounter for closed fracture
S32.392A	Other fracture of left ilium, initial encounter for closed fracture
S32.399A	Other fracture of unspecified ilium, initial encounter for closed fracture
S32.401A	Unspecified fracture of right acetabulum, initial encounter for closed fracture
S32.402A	Unspecified fracture of left acetabulum, initial encounter for closed fracture
S32.409A	Unspecified fracture of unspecified acetabulum, initial encounter for closed fracture
S32.411A	Displaced fracture of anterior wall of right acetabulum, initial encounter for closed fracture
S32.412A	Displaced fracture of anterior wall of left acetabulum, initial encounter for closed fracture
S32.413A	Displaced fracture of anterior wall of unspecified acetabulum, initial encounter for closed fracture
S32.421A	Displaced fracture of posterior wall of right acetabulum, initial encounter for closed fracture
S32.422A	Displaced fracture of posterior wall of left acetabulum, initial encounter for closed fracture
S32.423A	Displaced fracture of posterior wall of unspecified acetabulum, initial encounter for closed fracture
S32.431A	Displaced fracture of anterior column [iliopubic] of right acetabulum, initial encounter for closed fracture
S32.432A	Displaced fracture of anterior column [iliopubic] of left acetabulum, initial encounter for closed fracture

Diagnosis Code	Description
Pelvis	
S32.433A	Displaced fracture of anterior column [iliopubic] of unspecified acetabulum, initial encounter for closed fracture
S32.441A	Displaced fracture of posterior column [ilioischial] of right acetabulum, initial encounter for closed fracture
S32.442A	Displaced fracture of posterior column [ilioischial] of left acetabulum, initial encounter for closed fracture
S32.443A	Displaced fracture of posterior column [ilioischial] of unspecified acetabulum, initial encounter for closed fracture
S32.451A	Displaced transverse fracture of right acetabulum, initial encounter for closed fracture
S32.452A	Displaced transverse fracture of left acetabulum, initial encounter for closed fracture
S32.453A	Displaced transverse fracture of unspecified acetabulum, initial encounter for closed fracture
S32.461A	Displaced associated transverse-posterior fracture of right acetabulum, initial encounter for closed fracture
S32.462A	Displaced associated transverse-posterior fracture of left acetabulum, initial encounter for closed fracture
S32.463A	Displaced associated transverse-posterior fracture of unspecified acetabulum, initial encounter for closed fracture
S32.471A	Displaced fracture of medial wall of right acetabulum, initial encounter for closed fracture
S32.472A	Displaced fracture of medial wall of left acetabulum, initial encounter for closed fracture
S32.473A	Displaced fracture of medial wall of unspecified acetabulum, initial encounter for closed fracture
S32.481A	Displaced dome fracture of right acetabulum, initial encounter for closed fracture
S32.482A	Displaced dome fracture of left acetabulum, initial encounter for closed fracture
S32.483A	Displaced dome fracture of unspecified acetabulum, initial encounter for closed fracture
S32.491A	Other specified fracture of right acetabulum, initial encounter for closed fracture
S32.492A	Other specified fracture of left acetabulum, initial encounter for closed fracture
S32.499A	Other specified fracture of unspecified acetabulum, initial encounter for closed fracture
S32.501A	Unspecified fracture of right pubis, initial encounter for closed fracture
S32.502A	Unspecified fracture of left pubis, initial encounter for closed fracture
S32.509A	Unspecified fracture of unspecified pubis, initial encounter for closed fracture
S32.511A	Fracture of superior rim of right pubis, initial encounter for closed fracture
S32.512A	Fracture of superior rim of left pubis, initial encounter for closed fracture
S32.519A	Fracture of superior rim of unspecified pubis, initial encounter for closed fracture
S32.591A	Other specified fracture of right pubis, initial encounter for closed fracture
S32.592A	Other specified fracture of left pubis, initial encounter for closed fracture
S32.599A	Other specified fracture of unspecified pubis, initial encounter for closed fracture
S32.601A	Unspecified fracture of right ischium, initial encounter for closed fracture
S32.602A	Unspecified fracture of left ischium, initial encounter for closed fracture
S32.609A	Unspecified fracture of unspecified ischium, initial encounter for closed fracture
S32.611A	Displaced avulsion fracture of right ischium, initial encounter for closed fracture
S32.612A	Displaced avulsion fracture of left ischium, initial encounter for closed fracture
S32.613A	Displaced avulsion fracture of unspecified ischium, initial encounter for closed fracture
S32.614A	Nondisplaced avulsion fracture of right ischium, initial encounter for closed fracture
S32.615A	Nondisplaced avulsion fracture of left ischium, initial encounter for closed fracture

Diagnosis Code	Description
Pelvis	
S32.616A	Nondisplaced avulsion fracture of unspecified ischium, initial encounter for closed fracture
S32.691A	Other specified fracture of right ischium, initial encounter for closed fracture
S32.692A	Other specified fracture of left ischium, initial encounter for closed fracture
S32.699A	Other specified fracture of unspecified ischium, initial encounter for closed fracture
S32.810A	Multiple fractures of pelvis with stable disruption of pelvic ring, initial encounter for closed fracture
S32.811A	Multiple fractures of pelvis with unstable disruption of pelvic ring, initial encounter for closed fracture
S32.82XA	Multiple fractures of pelvis without disruption of pelvic ring, initial encounter for closed fracture
S32.89XA	Fracture of other parts of pelvis, initial encounter for closed fracture
S32.9XXA	Fracture of unspecified parts of lumbosacral spine and pelvis, initial encounter for closed fracture
S33.2XXA	Dislocation of sacroiliac and sacrococcygeal joint, initial encounter
Shoulder	
M24.611	Ankylosis, right shoulder
M24.612	Ankylosis, left shoulder
M24.619	Ankylosis, unspecified shoulder
M75.00	Adhesive capsulitis of unspecified shoulder
M75.01	Adhesive capsulitis of right shoulder
M75.02	Adhesive capsulitis of left shoulder

Description of Services

Manipulation under anesthesia (MUA) is a non-invasive procedure which combines manual manipulation of a joint or the spine with an anesthetic. Individuals who are unable to tolerate manual procedures due to pain, spasm, muscle contractures, or guarding may benefit from the use of an anesthetic agent prior to manipulation. Anesthetics may include intravenous general anesthesia or mild sedation, injection of an anesthetic to the affected area, oral medication such as muscle relaxants, inhaled anesthetics, or any other type of anesthetic medication therapy. Because the patient's protective reflex mechanism is, absent under anesthesia, manipulation using a combination of specific short lever manipulations, passive stretches, and specific articular and postural kinesthetic maneuvers in order to break up fibrous adhesions and scar tissue around the joint and surrounding tissue is made less difficult. Manipulation procedures can be performed under either: general anesthesia, mild sedation, or local injection of an anesthetic agent to the affected area (Reid, 2002).

Spinal manipulation under anesthesia (SMUA) consists of spinal manipulation and stretching procedures performed on the patient after an anesthetic is administered (e.g., mild sedation, general anesthesia). This is typically performed by chiropractors, osteopathic physicians, and orthopedic physicians along with an anesthesiologist. Theoretically, SMUA is thought to stretch the joint capsules to break up adhesions within the spinal column to allow for greater mobility and reduced back pain; however, this has not been proven to be safe and effective in the peer-reviewed literature.

Clinical Evidence

Knee

Randsborg et al. (2020) evaluated a case series of participants that experienced manipulation under anesthesia (MUA) for knee stiffness following a total knee replacment. 24 patients met the inclusion criteria; MUA was performed following a total knee arthroplasty (TKA), along with 2-3 days of continuous passive motion therapy and enhanced physiotherapy with home exercises upon discharge. The authors concluded the study supported previous findings that MUA for knee joint stiffness following a TKA improves ROM both in the short and long term. Limitations included small sample size, no comparison to a comparison group undergoing a different treatment or no treatment and retrospective design.

Gu et al. (2018) conducted a systematic review of the efficacy of MUA for stiffness following total knee arthroplasty (TKA). Twenty-two studies (1488 patients) reported on ROM after MUA, and 4 studies (81 patients) reported ROM after repeat MUA. However, none of the studies appeared to include a comparison group without MUA, limiting the conclusions that can be drawn. All studies reported pre-MUA motion of less than 90°, while mean ROM at last follow-up exceeded 90° in all studies except 2. For studies reporting ROM improvement following repeat MUA, the mean pre-manipulation ROM was 80° and the mean post-manipulation ROM was 100.6°. The authors concluded that MUA remains an efficacious, minimally invasive treatment option for post-operative stiffness following TKA and provides clinically significant improvement in ROM for most patients, with the best outcomes occurring in patients treated within 12 weeks post-operatively. The quality of studies, variability of inclusion criteria and methods for reporting the data, the lack of comparison groups and variability in the physical therapy (PT) regimens were just a few limitations identified in this systematic review. Additional research is expected to provide clarity regarding timing of MUA interventions and post-procedure PT protocol.

Fabricant et al. (2018) evaluated (not included in the Gu, et al. systematic review) in a case series of ninety patients aged 18 years and younger who underwent lysis of adhesions (LOA) and MUA at an urban tertiary care hospital following prior knee surgery. The primary purpose of this study was to report improvements in range of motion (ROM) following LOA/MUA in children and adolescents with knee arthrofibrosis, and, secondarily, to evaluate for any effect of preoperative dynamic splinting on ROM outcomes. Demographic, clinical, ROM, and revision data were all compiled. Mean time from index surgery to LOA/MUA was 6.0±4.4 months, and follow-up was 42±56 months. The authors found 62% of the participants had full ROM at follow up, and 25% had functional ROM. It was concluded that LOA/MUA for children with arthrofibrotic knees results in significant improvements in ROM with 90% revision-free success. Limitations of the study included lack of comparison group and small sample size.

A matched case control study (excluded from the Gu, et at. Systematic review) was conducted by Pierce et al. (2017) to assess the incidence of revision total knee arthroplasty (TKA) among patients who underwent or did not undergo manipulation under anesthesia (MUA) after initial TKA. A prospectively collected database of two high-volume institutions was assessed for patients who required a single MUA following TKA between 2005 and 2011. The study included138 knees with a mean 8.5-year follow-up post-MUA. This was compared with a matched cohort (1:1) who underwent TKA during the same time period but did not require an MUA. Incidence of revision surgery and clinical outcomes were compared between the two cohorts. Nine knees underwent revision in the MUA cohort, and seven revisions were performed in the matched cohort. The mean Knee Society Score (KSS) and clinical scores were similar between the two cohorts. The authors concluded that undergoing an MUA was not associated with an increased risk of revision TKA.

However, patients requiring MUA after an initial TKA may have been different from those not requiring MUA, limiting the conclusions that can be derived from this study.

Sassoon et al. (2015) performed a retrospective review on a case study of 22 patients (not included in the Gu, et al. systematic review) to evaluate whether closed manipulations performed under anesthesia (MUA) were an effective means to treat posttraumatic knee arthrofibrosis. Injuries included fractures of the femur, tibia, and patella as well as ligamentous injuries and traumatic arthrotomies. The mean time from treatment to manipulation was 90 days and a mean follow-up after manipulation was 7 months. The authors found improvement of motion (ROM) for the knee was the primary outcome. It was concluded MUA is a safe and effective method to increase knee ROM in the setting of posttraumatic arthrofibrosis. Limitations of the study included lack of comparison group and small sample size.

Fitzsimmons et al. (2010) conducted a systematic review to outcomes between studies that used either MUA arthroscopy with or without MUA, or open arthrolysis for knee stiffness following total knee arthroplasty. The review evaluated 23 studies. MUA alone resulted in a mean gain in knee motion of 30 to 47 degrees. Range of motion in the arthroscopy group increased between 18.5 to 60 degrees. The open arthrolysis group had less gain in range of motion with gains between 19 and 31 degrees. The authors concluded that both MUA and arthroscopy provide similar gains in range of motion for patients with knee stiffness following total knee arthroplasty. Open arthrolysis had less favorable results. While this review compared outcome between treatments, all comparisons were indirect, as each included study used one of the approaches only.

Shoulder

In a cohort study of 30 participants, Kim and colleagues (2020) studied early clinical outcomes of manipulation under anesthesia (MUA) compared to thirty participants with arthroscopic capsular release (ACR) among patients with refractory adhesive campsulitis (AC). The same surgeon injected a steroid mixture into the shoulder capsule along with performing

internal and external rotations. The other group of participants had an arthroscopic capsular release performed with intra-articular steroid injection performed upon surgery completion. Both groups received the same postop rehabilitation protocol. Evaluation at 12 months illustrated both groups had significant improvement in ROM, but the MUA group achieved restoration of ROM ealier in the postop period. The authors concluded that MUA can be considered as a useful treatment option before pursuing ACR. Limitations of the study included small sample size and lack of randomization.

In a case series, Woods and Loganathan (2017) studied recurrence of frozen shoulder after MUA through prospectively collected data on 730 patients at a single institution. Further MUA was undertaken in 141 shoulders (17.8%), for which complete data was available for 126. The mean improvement in OSS for all patients undergoing MUA was 16 (26 to 42), and the mean post-operative OSS in those requiring a further MUA was 14 (28 to 42; *t*-test, no difference between mean improvements, p = 0.57). Improvement was seen after a further MUA, regardless both of the outcome of the initial MUA, and of the time of recurrence. This study is however limited by lack of comparison group.

In another case series, Bidwai et al. (2016) conducted a prospective single surgeon patient reported outcome study to determine the results of limited anterior capsular release and controlled manipulation under anesthesia (MUA) in the treatment of primary frozen shoulder. Fifty-two patients were followed at regular intervals for a minimum of 6 months and a maximum of 12 months. Patients underwent pre and postoperative passive range of motion measurements (forward flexion, abduction, external rotation). Fifty-one patients (98%) achieved 160 degrees of forward flexion at a 6-month follow-up, with one patient only having 110 degrees. Fifty patients (96%) achieved 140 degrees of abduction at a 6-month follow-up, with one patient achieving 160 degrees and one patient limited to 90 degrees. No patients required surgical re-intervention. The authors concluded that there was a significant improvement in both pain and function modules of the Oxford Shoulder Score (OSS), and range of motion at 6 months. The median postoperative score was 41 from a maximum of 48 points, with an average mean improvement of 24 points. A combination of limited capsular release and MUA for the treatment of primary frozen shoulder is a safe and effective procedure resulting in marked improvement in pain, function and range of motion. This study is however limited by lack of comparison group.

A prospective randomized controlled study was performed by Mun and Baek (2016) to compare the clinical efficacy of hydrodistention with joint manipulation under an interscalene block with that of intra-articular corticosteroid injection. The study included 121 patients presenting with frozen shoulder. Patients were randomized into 2 groups; those in group A (60 patients) were treated by hydrodistention with joint manipulation under an interscalene block, and those in group B (61 patients) were managed with intra-articular corticosteroid injection. The visual analog scale (VAS) was utilized to assess the pain intensity and patient satisfaction. Functional outcomes were assessed by the Constant score and the range of shoulder motion. The degree of pain and function were evaluated before treatment and at 2 weeks, 6 weeks, 12 weeks, 6 months, and 1 year. Group A demonstrated better patient satisfaction and earlier restoration of range of motion than group B at 6 weeks. At 12 weeks, the pain score was lower, and the Constant score was better in group A. At 12 months after treatment, pain score, patient satisfaction, range of motion, and Constant score were similar in the 2 groups. The authors concluded that the study demonstrated earlier recovery with hydrodistention, and manipulation compared with corticosteroid injection alone, and it was not associated with any complications.

A systematic review by Grant and colleagues (2013) looked at whether there is a difference in the clinical effectiveness of arthroscopic capsular release compared to MUA for adhesive capsulitis. There were 9 MUA studies and 17 capsular release studies that were evaluated. The authors concluded that evidence quality is low (definitions, timing and outcomes inconsistent) so that the data available demonstrates no clear difference between a capsular release and an MUA. This review however did not compare these two approaches to medical therapy or other approaches.

A blinded, randomized trial with a 1-year follow-up, by Kivimaki et al. (2007) evaluated 125 patients with a frozen shoulder to determine the effect of MUA. Patients were randomly assigned to either a manipulation group (65 patients) or a control group (60 patients). Both the intervention group and the control group were instructed in specific therapeutic exercises by physiotherapists. Clinical data was gathered at baseline and at 6 weeks and 3, 6, and 12 months after randomization. The 2 groups did not differ at any time of the follow-up in terms of shoulder pain or working ability. Small differences in the range of movement were detected in favor of the manipulation group. Perceived shoulder pain decreased during follow-up equally in the 2 groups, and at 1 year after randomization, only slight pain remained. The authors concluded that manipulation under anesthesia does not add effectiveness to an exercise program carried out by the patient after instruction.

Spine

Methodological limitations of studies reported in a narrative review (DiGiorgio, 2013) of the literature investigating spinal manipulation under anesthesia (SMUA) concluded that, “the evidence of treatment efficacy [SMUA] remains limited, with published studies that are generally weak in their methodological quality and consistently varied across multiple domains which do not permit comparative analysis toward generalization.” Similarly, a review (Dagenais, et al, 2008) of medication-assisted manipulation for patients having chronic low back pain reported, “there is insufficient research to guide clinicians, policy makers, and especially patients' decision whether to consider this treatment [spinal medication-assisted manipulation] approach.” MUA for low back pain has been used for many years however there is insufficient evidence in the published literature to support the long-term safety and efficacy of its use.

Taber et al. (2014) performed a retrospective chart review of 18 cases treated with manipulation under anesthesia (MUA) for lumbopelvic pain at an outpatient ambulatory surgical center. Patients with pre- and postintervention Oswestry Low Back Pain Disability Index (ODI) scores were included along with patients having lumbopelvic and hip complaints. ODI scores were assessed within one week prior to MUA and again two weeks after the procedure. The participants underwent two to four chiropractic MUA procedures over the course of a week per the National Academy of Manipulation Under Anesthesia physicians’ protocols. Preprocedure ODI scores ranged from 38 to 76; postprocedure scores range from 0 to 66. For each patient, the ODI scores were lower with average decrease of 20.6. The authors identified sixteen of the eighteen patients experienced meaningful improvement of their pain. Limitations of the study included small study size, no control group, potential bias, and insufficient data on long-term safety. The authors suggested future large scale, carefully controlled prospective studies be performed.

In a prospective study of 68 patients with chronic low-back pain, Kohlbeck et al. (2005) compared changes in pain and disability for chronic low-back pain patients receiving treatment with medication-assisted manipulation (MAM) to patients receiving spinal manipulation only. All patients received an initial 4- to 6-week trial of spinal manipulation therapy (SMT), after which 42 patients received supplemental intervention with MAM and the remaining 26 patients continued with SMT. Low back pain and disability measures favored the MAM group over the SMT-only group at 3 months. The authors concluded that medication-assisted manipulation appears to offer some patients increased improvement in low back pain and disability; however the study is limited by lack of randomization, small sample size insufficient data on long-term safety, and significant baseline differences between groups for the primary outcome variable (pain/disability scale).

In a prospective controlled study by Palmieri and Smoyak (2002), 87 patients who received either spinal manipulation under anesthesia (SMUA) or traditional chiropractic treatment for low back pain were evaluated. The participants were assigned to one of two groups: 38 to an intervention group who received SMUA and 49 patients to a nonintervention group who received traditional chiropractic treatment. Patients were followed for 4 weeks. Self-reported outcomes, including back pain severity and functional status, were used to evaluate changes. The SMUA group had an average decrease of 50% in the Numeric Pain Scale scores while the nonintervention group had a 26% decrease. The SMUA group had an average decrease of 51% in the Roland-Morris Questionnaire scores while the nonintervention group had a 38% decrease. The authors concluded that while there was greater improvement in the intervention group, additional studies are needed to evaluate the safety and effectiveness of MUA. This study has a high risk of bias due to the methods used to select subjects, lack of assessor blinding, failure to isolate the effects of the active intervention, and interpretation of outcomes. Subjects were selected largely based upon 2 criteria: meeting NAMUAP eligibility requirements and having insurance coverage for SMUA. This led to significant baseline heterogeneities between intervention and control groups. Sample size (N=87; SMUA group = 38; SMT group = 49) did not reach anticipated number of participants. The attempt to measure the difference in treatment effect between SMUA and SMT was confounded by the addition of a specific exercise protocol for the SMUA group vs. an undefined "home exercise" program for the SMT group. Follow-up period was limited and therefore insufficient data on long-term safety are available. Problems with obtaining timely follow-up data were reported. The use of a percentile difference in outcome scores between groups does not take into account if each outcome of interest exhibited a clinically meaningful difference between each group. In fact, there were no statistical or clinically meaningful differences between groups. There was a difference of 1.52 points on the NRS at initial follow-up and 1.32 points difference at final follow-up (the minimal clinically important change has been widely reported as 2 points). The difference at initial follow-up for the RMDQ was 2.2 points and at final follow-up was 1 point (as noted in the study, a 4 point difference is necessary for it to be clinically meaningful).

Temporomandibular Joint (TMJ)

TMJ may spontaneously resolve or reoccur or respond to warm compresses, non-steroidal anti-inflammatory drugs (NSAIDs) splint therapy or physical therapy. However, the available evidence for manipulation under anesthesia for temporomandibular joint syndrome is limited to small, uncontrolled studies with limited follow-up.

Foster et al. (2000) studied 55 patients receiving manipulation under general anesthesia of the temporomandibular joint to determine the success rate of MUA effectiveness in an effort to reduce the number of patients being referred for invasive surgery. Of the 55 patients participating in this study, 15 improved, 15 did not, 6 showed partial improvement and 19 were not treated. The median pre-treatment opening was 20mm (range 13-27). Among those who improved after manipulation, the median opening after treatment was 38mm (range 35-56). The authors concluded that MUA may help some patients; however, some of those who improved experienced a return of TMJ clicking but not of joint or muscle tenderness. Furthermore, this study is limited by lack of comparison group.

Toe

The available evidence for manipulation under anesthesia for a toe is insufficient to consider the procedure proven to be effective and safe.

Ajwani et al. (2018) assessed 35 patients that had undergone first metatarsophalangeal joint (MTPJ) surgery to determine the effectiveness of MUA and steroid injection to treat joint stiffness. Documentation of ROM measurements and radiographs were reviewed. A mixture of depomedrone and bupivacaine were used for the steroid injection. Following MUA, the participants were given the Manchester–Oxford foot questionnaire (MOXFQ) to complete for assessment of their level of joint pain. The mean pre-manipulation total range of movement at the first MTPJ was 25° (range 5–100), immediate post-manipulation ROM was 70° (10–180), and final follow-up ROM was 50° (10–90). The average post-operative MOXFQ score was 25.2 (out of 52). The authors concluded joint ROM significantly improved after manipulation by a mean of 44.7 degrees. Limitations included small sample size, retrospective in nature and lack of randomization with no control or comparative groups.

Feuerstein et al. (2016) performed a medical records review study (n-38) to investigate the intermediate and long-term outcomes of first metatarsophalangeal (MTP) joint manipulation for arthrofibrosis that developed, specifically, as a complication of hallux valgus surgery. Medical records were reviewed at the Weil Foot and Ankle Institute, IL to identify those patients who had undergone first metatarsophalangeal (MTP) joint manipulation under anesthesia. Before the patient's visit, the medical records were reviewed to assess the course and timing of the procedures, visual analog scale (VAS) score before manipulation and range of motion (ROM) of the first MTP joint after hallux valgus correction and before manipulation and first MTP joint ROM immediately after manipulation. Manipulation procedures occurred at a mean 1.2 years from the date of the initial hallux valgus correction. The research visits occurred at a mean 6.5 years after the first MTP joint manipulation. Before manipulation, the patients had a mean VAS score of 6.5. At the research visit, the mean VAS score was 2.3. The authors concluded that joint motion was significantly improved in the direction of dorsiflexion and plantar flexion from before manipulation to both immediately after manipulation and at the final follow-up visit. They stated that the study demonstrated that joint manipulation under anesthesia could be a useful treatment modality to increase mobility and decrease pain in the patient. The limitations of the study include the lack of randomization, lack of a control or comparison group, and potential selection bias.

Clinical evidence was not identified regarding manipulation under anesthesia for treating any condition (for single or serial manipulations) related to the following:

- Ankle
- Finger
- Hip
- Pelvis
- Wrist

Other

The Work Loss Data Institute Official Disability Guidelines (ODG) (2014) for neck, upper back; lumbar and thoracic and disorders state that, "except in urgent situations as a closed orthopedic procedure in the treatment (reduction) of vertebral fracture or dislocation. In the absence of vertebral fracture or dislocation, MUA is not supported by quality evidence in the management of spine-based neuromusculoskeletal conditions (i.e., those involving chronic pain and/or fibrotic adhesions/scar

tissue). Existing studies are poor quality and vary across numerous domains including technique application, potential use of co-interventions and dosage, so any favorable outcomes reported cannot be generalized."

Clinical Practice Guidelines

American Academy of Orthopaedic Surgeons (AAOS)

The AAOS lists manipulation under anesthesia as an option for treatment of adhesive capsulitis (frozen shoulder).

American College of Occupational and Environmental Medicine (ACOEM)

In a recommendation regarding MUA, the ACOEM (2012) has concluded that MUA and medication-assisted spinal manipulations are not recommended due to insufficient evidence of safety and effectiveness for acute, subacute and chronic cervicothoracic and low back pain. MUA is recommended for treatment of adhesive capsulitis in select patients.

U.S. Food and Drug Administration (FDA)

This section is to be used for informational purposes only. FDA approval alone is not a basis for coverage.

Manipulation is a procedure and therefore not subject to FDA regulation.

References

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Policy History/Revision Information

Date	Summary of Changes
08/01/2021	Application • Added language to indicate this policy does not apply to the states of Mississippi, North Carolina, and Pennsylvania; refer to the state-specific policy version
05/01/2021	Template Update • Replaced content sub-heading titled “Professional Societies” with “Clinical Practice Guidelines” in *Clinical Evidence* section • Replaced reference to “MCG™ Care Guidelines” with “InterQual® criteria” in *Instructions for Use* Application • Added language to indicate this policy does not apply to the state of Indiana; refer to the state-specific policy version

Date	Summary of Changes

04/01/2021	**Related Policies**
	• Added reference link to the:
	  ○ Medical Policy titled *Manipulative Therapy*
	  ○ Utilization Review Guideline titled *Outpatient Surgical Procedures – Site of Service*
	Supporting Information
	• Removed *CMS* section
	• Updated *Clinical Evidence* and *References* sections to reflect the most current information
	• Archived previous policy version CS075.L

Instructions for Use

This Medical Policy provides assistance in interpreting UnitedHealthcare standard benefit plans. When deciding coverage, the federal, state or contractual requirements for benefit plan coverage must be referenced as the terms of the federal, state or contractual requirements for benefit plan coverage may differ from the standard benefit plan. In the event of a conflict, the federal, state or contractual requirements for benefit plan coverage govern. Before using this policy, please check the federal, state or contractual requirements for benefit plan coverage. UnitedHealthcare reserves the right to modify its Policies and Guidelines as necessary. This Medical Policy is provided for informational purposes. It does not constitute medical advice.

UnitedHealthcare may also use tools developed by third parties, such as the InterQual® criteria, to assist us in administering health benefits. The UnitedHealthcare Medical Policies are intended to be used in connection with the independent professional medical judgment of a qualified health care provider and do not constitute the practice of medicine or medical advice.