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| POLICY TITLE | TEMPOROMANDIBULAR JOINT DYSFUNCTION (TMJ) |
| POLICY NUMBER | MP-2.062 |

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| Original Issue Date (Created): | July 1, 2002 |
| Most Recent Review Date (Revised): | November 26, 2013 |
| Effective Date: | February 1, 2014 |

I. POLICY

The following *diagnostic procedures* may be considered **medically necessary** in the diagnosis of Temporomandibular Joint Dysfunction (TMJ):

- Diagnostic X-ray, tomograms, and arthrograms;
- Computed tomography (CT) scan or magnetic resonance imaging (MRI) (in general, CT scans and MRIs are reserved for pre-surgical evaluations);
- Cephalograms (X-rays of the jaw and skull);
- Pantograms (X-rays of maxilla and mandible).

The following *diagnostic procedures* are considered **investigational** in the diagnosis of TMJ dysfunction:

- Electromyography (EMG), including surface EMG;
- Kinseigraphy;
- Thermography
- Neuromuscular junction testing;
- Somatosensory testing;
- Transcranial or lateral skull X-rays
- Intra-oral tracing or gothic arch tracing (intended to demonstrate deviations in the positioning of the jaws that are associated with TMJ dysfunction);
- Muscle testing;
- Standard dental radiographic procedures;
- Range of motion measurements;
- Computerized mandibular scan (this measures and records muscle activity related to movement and positioning of the mandible and is intended to detect deviations in occlusion and muscle spasms related to TMJ dysfunction);
- Arthroscopy of the TMJ for purely diagnostic purposes;
- Joint vibration analysis

The procedures listed above are all considered **investigational**, as there is insufficient evidence to support a conclusion concerning the health outcomes or benefits associated with these procedures.

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The following *non-surgical treatments* may be considered **medically necessary** in the treatment of TMJ dysfunction:

- Intra-oral removable prosthetic devices/appliances (encompassing fabrication, insertion, and adjustment);
- Pharmacological treatment, (such as anti-inflammatory, muscle relaxing, and analgesic medications);

The following *non-surgical treatments* are considered **investigational** in the treatment of TMJ:

- Electrogalvanic stimulation;
- Iontophoresis;
- Biofeedback;
- Ultrasound
- Devices to maintain joint range of motion and to develop muscles involved in jaw function (e.g., continuous passive motion devices such as the Therapacer 2000);
- Orthodontic services;
- Dental restorations/prostheses;
- TENS (transcutaneous electrical nerve stimulation).
- PENS (percutaneous electrical nerve stimulation);
- Physical medicine services, including diathermy, infrared, and heat and cold treatment, and manipulation;
- Acupuncture
- Low-level laser therapy;
- Hyaluronic acid.

The following *surgical treatments* may be considered **medically necessary** in the treatment of TMJ dysfunction:

- Arthrocentesis;
- Manipulation for reduction of fracture or dislocation of the temporomandibular joint;
- Arthroscopic surgery in patients with objectively demonstrated (by physical examination or imaging) internal derangements (displaced discs) or degenerative joint disease who have failed conservative treatment; or
- Open surgical procedures (when TMJ dysfunction is the result of congenital anomalies, trauma, or disease in patients who have failed conservative treatment) including, but not limited to, arthroplasties, condylectomies; meniscus or disc plication and disc removal.

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Cross-references:

- MP-1.094** Skin Contact Monochromatic Infrared Energy for the Treatment of Cutaneous Ulcers, Diabetic Neuropathy, and Other Miscellaneous Musculoskeletal Conditions
- MP-1.101** Orthognathic Surgery
- MP-2.063** Electromyography, Nerve Conduction Velocity Studies, and Quantitative Sensory Testing
- MP-2.064** Biofeedback and Neurofeedback Therapy
- MP-4.013** Iontophoresis and Phonophoresis
- MP-6.026** Durable Medical Equipment
- MP-8.006** Manipulation Under Anesthesia

II. PRODUCT VARIATIONS

[N] = No product variation, policy applies as stated

[Y] = Standard product coverage varies from application of this policy, see below

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|--------------------------|------------------|
| [N] Capital Cares 4 Kids | [N] Indemnity |
| [N] PPO | [N] SpecialCare |
| [Y] HMO* | [N] POS |
| [Y] SeniorBlue HMO**** | [Y] FEP PPO**/** |
| [Y] SeniorBlue PPO**** | |

*This product does not provide coverage for the intra-oral reversible prosthetic devices/appliances, as they are excluded in the contract.

** Refer to FEP Medical Policy Manual MP-2.01.21 Temporomandibular Joint Dysfunction. The FEP Medical Policy manual can be found at: www.fepblue.org

***The Federal Employee Program (FEP) includes specific conditions under which acupuncture may be covered:

- When used to treat illnesses and/or injuries (i.e., used for other than inducing anesthesia);
- When provided as anesthesia for covered surgery;
- When provided as anesthesia for covered maternity care.

****Medicare allows for coverage of physical medicine services for treatment of TMJ. Refer to [Centers for Medicare and Medicaid Services \(CMS\) Medicare Benefit Policy Manual Publication 100-02 Chapter 15, § 150.1](#)

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III. DESCRIPTION/BACKGROUND

Temporomandibular joint (TMJ) disorders refer to a group of disorders characterized by pain in the TMJ and surrounding tissues. Initial conservative therapy is generally recommended; there are also a variety of non-surgical and surgical treatment possibilities for patients whose symptoms persist.

Temporomandibular joint (TMJ) dysfunction (also known as TMJ disorders) refers to a cluster of problems associated with the temporomandibular joint and musculoskeletal structures. The etiology of TMJ disorders remains unclear and is believed to be multifactorial. TMJ disorders are often divided into two main categories: articular disorders (e.g., ankylosis, congenital or developmental disorders, disk derangement disorders, fractures, inflammatory disorders, osteoarthritis and joint dislocation) and masticatory muscle disorders (e.g., myofascial pain, myofibrotic contracture, myospasm and neoplasia).

There are no generally accepted criteria for diagnosing TMJ disorders. It is often a diagnosis of exclusion and involves physical examination, patient interview, and dental record review. Diagnostic testing and radiologic imaging is generally only recommended for patients with severe and chronic symptoms.

Symptoms attributed to TMJ dysfunction are varied and include but are not limited to clicking sounds in the jaw; headaches; closing or locking of the jaw due to muscle spasms (trismus) or displaced disc; pain in the ears, neck, arms, and spine; tinnitus; and bruxism (clenching or grinding of the teeth).

For many patients, symptoms of TMJ dysfunction are short-term and self-limiting. Conservative treatments, such as eating soft foods, rest, heat, ice, and avoiding extreme jaw movements, and anti-inflammatory medication, are recommended prior to consideration of more invasive and/or permanent therapies, such as surgery.

IV. RATIONALE

An initial literature search with the MEDLINE database was performed through March 1995. The policy was updated regularly; the most recent literature review was from May 2012 through May 23, 2013. Recent literature searches have concentrated on identifying systematic reviews and meta-analyses. For treatment of temporomandibular (TMJ) disorders, the focus has been on studies that compared novel treatments to conservative interventions and/or placebo controls (rather than no-treatment control groups) and that reported pain reduction and/or functional outcomes, e.g., jaw movement.

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Diagnosis of temporomandibular dysfunction

Several systematic reviews of the literature on specific techniques for diagnosing TMJ were identified and are described below.

Magnetic resonance imaging (MRI)

A systematic review on MRI was published in 2009 by Koh and colleagues and included 23 studies. (1) Eight of the 23 studies found a relationship between a clinical and MRI diagnosis. The authors found substantial variability in study design, methods of clinical examination, and diagnostic criteria and therefore could not pool study findings. The Koh et al. review concluded that there is no clear evidence of a relationship between clinical and MRI diagnosis, and findings and additional studies using improved methodologies are needed.

Ultrasound

A 2009 systematic review identified 20 studies evaluating ultrasound for diagnosing TMJ disorders; all studies evaluated disc displacement and several additionally considered osteoarthritis and/or joint effusion. (2) The reported sensitivity of ultrasound to detect disc displacement, compared to the reference standard (MRI in the majority of studies), ranged from 31-100%, and the specificity ranged from 30-100%. The investigators stated that, even when changes in ultrasound technology over time were taken into consideration, study findings were contradictory. They noted unexplained differences between studies conducted by the same group of researchers. The authors concluded that additional progress needs to be made in standardizing ultrasound assessment of the TMJ joint before this can be considered an accurate tool for diagnosing TMJ disorders.

Surface electromyography

The authors of a 2006 systematic review on surface electromyography found a lack of literature on the accuracy of this method of diagnosis, compared to a gold standard (i.e., comprehensive clinical examination and history-taking). (3) They concluded that there is insufficient evidence that electromyography can accurately separate individuals with facial pain from those without pain but that the technique may be useful in a research setting.

Joint vibration analysis

In 2013, Sharma and colleagues published a systematic review of literature on joint vibration analysis for diagnosis of TMJ disorders. (4) The authors identified 15 studies that evaluated the reliability and/or diagnostic accuracy of joint vibration analysis compared to a reference standard. Methodological limitations were identified in all the studies. These limitations included the absence of well-defined diagnostic criteria, use of a non-validated system for classifying

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disease progression, variability within studies in the reference standard, and lack of blinding. In the 14 studies reporting on diagnostic accuracy, there was a wide range of reported values, with sensitivity ranging from 50-100% and specificity ranging from 59-100%.

Treatment of temporomandibular dysfunction

A 2010 article by List and Axelsson was a review of systematic reviews on treatments for TMJ dysfunction published through August 2009. (5) The authors identified 30 reviews; there were 23 qualitative systematic reviews and 7 meta-analyses. Eighteen of the systematic reviews included only randomized controlled trials (RCTs), 3 included case-control studies, and 9 included a mixture of RCTs and case series. There was inconsistency in how TMJ disorders were defined in the primary studies and systematic reviews, and several of the reviews addressed the related diagnoses of bruxism, disc replacements, and myofascial pain. Twenty-nine of the systematic reviews had pain intensity or pain reduction as the primary outcome measure, and 25 reported clinical outcome measures such as jaw movement or jaw tenderness on palpation. The authors divided the treatments into 5 categories (some studies were included in more than 1 category). These categories and the main findings are as follows:

- 1) Occlusal appliances, occlusal adjustment, and orthodontic treatment (10 articles): 6 systematic reviews did not find significant benefit compared to other treatments, 4 found no benefit compared to a placebo device, and 3 found that occlusal therapy was better than no treatment.
- 2) Physical therapy including acupuncture, transcutaneous electrical nerve stimulation (TENS), exercise and mobilization (8 articles): 4 reviews found no significant benefit of acupuncture over other treatments, 1 found no difference between acupuncture and placebo treatment, and 3 found that acupuncture was better than no treatment.
- 3) Pharmacologic treatment (7 articles): treatments found to be superior to placebo were analgesics (2 reviews), clonazepam or diazepam (3 reviews), antidepressants (4 reviews) and hyaluronate (1 review). The last review also found hyaluronate and corticosteroids to have a similar effect.
- 4) Maxillofacial surgery (4 articles): 3 reviews evaluated surgery for patients with disc displacements and the fourth addressed orthognathic surgery in patients with TMJ disorder. Reviews of surgical treatments generally included lower level evidence, e.g., case series, and did not always compare surgery to a control condition. One systematic review found a similar effect of arthrocentesis, arthroscopy, and physical therapy.
- 5) Behavioral therapy and multimodal treatments (6 articles): 2 reviews found biofeedback to be better than active control or no treatment, 1 review found a combination of biofeedback and cognitive-behavioral therapy to be better than no treatment, and 2 found a combination of

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biofeedback and relaxation to be better than no treatment. One review found that the effects of biofeedback and relaxation were similar.

Overall, the authors concluded that there is insufficient evidence that electrophysical modalities and surgery are effective for treating TMJ dysfunction. They found some evidence that occlusal appliances, acupuncture, behavioral therapy, jaw exercise, postural training, and some medications can be effective in reducing pain for patients with TMJ disorders. However, the authors note that most of the systematic reviews they examined included primary studies with considerable variation in methodologic quality, and thus, it is not possible to make definitive conclusions about the effectiveness of any of the treatments.

Representative systematic reviews and meta-analyses on specific treatments for TMJ disorders are summarized below:

Intra-oral appliances/devices

A 2010 systematic review searched for RCTs on intraoral treatment of TMJ disorders and identified 47 publications on 44 trials. (6) Intraoral appliances included soft and hard stabilization appliances, anterior positioning appliances, anterior bite appliances, and soft resilient appliances. Studies compared 2 types of devices or compared one device to a different treatment, e.g., acupuncture or biofeedback. None of the studies evaluated use of one device during the day and a different device during the night. The primary outcome of the meta-analysis was pain. Pain was measured differently in the studies, and the authors defined a successful outcome as at least a 50% reduction in pain on a self-report scale or at least an “improved” status when pain was measured by subjective report of status. Ten RCTs were included in a meta-analysis; the others were excluded because they did not measure pain, there were not at least 2 studies using similar devices or control groups, or data were not usable in a pooled analysis. A pooled analysis of 7 RCTs with 385 patients evaluating hard stabilization appliances and using palatal non-occluding appliances as a control found a significantly greater reduction in pain with hard appliances (odds ratio [OR]: 2.45; 95% confidence interval [CI]: 1.56 to 3.86, p=0.0001). A pooled analysis of 3 studies with 216 patients did not find a significant effect of hard appliances compared to a no-treatment control group, OR: 2.14 (95% CI: 0.80 to 5.75, p=0.12), p=0.86.

Stabilization splints

In 2012, Ebrahim and colleagues identified 11 RCTs comparing splint therapy for TMJ to minimal or no therapy. (7) Nine of the 11 studies used stabilization splints, 1 used soft splints and 1 used an anterior repositioning appliance. The authors used the GRADE system to rate study quality. Nine studies did not report whether allocation was concealed, and 6 studies did not report masking of outcome assessors. Length of follow-up in the studies ranged from 6 to 52 weeks. A pooled analysis of study findings found that splint therapy was significantly associated with a reduction in reported pain compared to minimal or no intervention (standardized mean

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difference [SMD]: -0.93, 95% CI: -1.33 to -0.53). Using a visual analogue scale to measure pain, splint therapy was associated with an 11.5 mm lower mean VAS score (95% CI: -16.5 mm to -6.6 mm). There were not statistically significant differences between groups in quality of life or depression scores. An earlier meta-analysis by Al-Ani and colleagues, published in 2004, identified 12 RCTs that compared stabilization splint therapy for TMJ dysfunction to a control intervention. (8) (The control group was not limited to minimal or no intervention as in the Ebrahim review, described above). There was wide variability in the comparison interventions and no standardization of outcomes; thus, results of the studies were not pooled.

Orthodontic services

A 2010 Cochrane review by Luther and colleagues did not identify any RCTs evaluating orthodontic treatment for treating TMJ disorders and thus concluded that there is insufficient evidence on the efficacy of orthodontics. (9) They defined orthodontic treatment as appliances that would induce stable tooth movement for a sufficient period of time to bring about permanent change in tooth position.

Acupuncture

A 2011 meta-analysis identified 7 sham-controlled RCTs on acupuncture for treating TMJ disorders. (10) The studies included a total of 141 patients. Sample sizes of individual studies ranged from 7 to 28. Four studies used a single acupuncture session, and the other 3 used 6-12 sessions. All 7 studies reported change in pain intensity as assessed by a visual analogue scale (VAS). In 6 of the studies, pain intensity was measured immediately after treatment, the 7th measured pain after 16 weeks. A pooled analysis of findings from 5 studies (n=107) found a statistically significant improvement in pain intensity, as measured by a VAS. The pooled weighted mean difference (WMD) in pain intensity was -13.63 (95% CI: -21.16 to -6.10, p=0.0004). In a sub-group analysis, a pooled analysis of 4 studies (n=89) found acupuncture to be superior to a non-penetrating sham acupuncture, WMD: -13.73; 95% CI: -21.78 to -5.67, p=0.0008. A pooled analysis of 2 studies (n=18) did not find a significant difference in efficacy between acupuncture and a penetrating sham acupuncture, WMD: -12.95 95% CI: -34.05 to 8.15, p=0.23. The latter analysis may have been underpowered. The authors noted that previous studies have found that a 24.2-mm change in pain assessed by a 100-mm VAS represents a clinically significant difference and that only 2 of the included studies had a change of 24.2 mm or more. The evidence on acupuncture is limited by the small number of studies, small sample sizes, and, in most studies, assessment of effectiveness only immediately post-treatment.

Behavioral therapy/psychosocial interventions

In 2011, the Cochrane collaboration published a systematic review of psychosocial interventions for managing chronic orofacial pain. (11) The review included 15 RCTs on TMJ disorders. However, only 9 of the trials had data that were suitable for pooling; the others were excluded

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due to study design and/or because they only reported data graphically. The 9 studies had a high degree of heterogeneity e.g., used different interventions, reported different outcomes or outcomes over different time periods. The interventions addressed in the studies included cognitive-behavioral therapy (CBT) alone (4 studies), biofeedback alone (2 studies), combination of CBT and biofeedback (2 studies), and physical self-regulation (1 study). Short-term follow-up was defined as 3 months or less, and long-term as more than 3 months. Due to heterogeneity among studies, an overall pooled analysis of data from the 7 studies on short-term pain could not be performed. The investigators were able to pool data from the 2 studies on combined CBT and biofeedback compared to usual care; the analysis found a statistically significant difference favoring usual care (standardized mean difference [SMD]: 0.46, 95% confidence interval (CI): 0.02 to 0.90). A pooled analysis of the 2 studies on biofeedback alone did not find a significant benefit of the intervention (SMD: -0.41; 95% CI: -1.06 to 0.25). In a pooled analysis of data from the 7 studies on long-term change in pain, there was a statistically significant difference in favor of psychosocial interventions compared to control interventions (SMD: -0.34; 95% CI: -0.50 to -0.18). Pooled analyses of 4 studies on CBT alone and 3 studies on CBT plus biofeedback also significantly favored the group receiving the psychosocial intervention. Only one study each reported long-term pain with biofeedback alone and with physical self-regulation.

Surgery

A Cochrane review by Guo and colleagues, last updated in 2009, identified 2 RCTs with a total of 81 patients that evaluated the effectiveness of arthrocentesis and lavage for the treatment of TMJ dysfunction compared to arthroscopy. (12) Data were pooled only for the outcome maximum incisal opening. A meta-analysis of the 2 trials found a statistically significant difference between the interventions for this outcome with a WMD of -5.28 (95% CI: -7.10 to -3.46) in favor of arthroscopy.

In a 2013 systematic review, Vos and colleagues identified 3 RCTs with a total of 222 patients comparing the efficacy of lavage of the TMJ (i.e., arthrocentesis or arthroscopy) to non-surgical TMJ treatment. (13) Although they assessed the quality of the studies to be adequate, only 1 study stated that allocation to treatment group was concealed, and 2 studies did not explicitly state that an intention-to-treat analysis was used. The 2 primary outcomes considered were change in pain and maximal mouth opening (MMO) at 6 months compared to baseline. Pain was measured by a visual analogue scale (VAS). Pooled analysis of data from the 3 trials found a statistically significant reduction in pain at 6 months with lavage versus non-surgical therapy (SMD: -1.07, 95% CI: -1.38 to -0.76). There was not a statistically significant difference in the efficacy of the 2 treatments for the other outcome variable, MMO (SMD: -0.05, 95% CI: -0.33 to 0.23).

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Hyaluronic acid

Literature on hyaluronic acid was added to the policy in 2012. There are several systematic reviews of studies on hyaluronic acid for treating TMJ disorders. Only one of the systematic reviews limited its inclusion criteria to randomized controlled trials and pooled study findings. This was a Cochrane review by Shi and colleagues, published in 2003. (14) The Shi review included RCTs comparing the effect of at least one hyaluronic acid injection alone or in combination with other active treatments to placebo or glucocorticoid injections alone or in combination with the same active treatment group. A total of 7 studies met inclusion criteria; 3 studies compared hyaluronic acid and placebo, 3 studies compared hyaluronic acid and glucocorticoids and 2 studies compared hyaluronic acid plus arthroscopy or arthrocentesis to arthroscopy or arthrocentesis alone. (One study included 3 arms and was included in the first 2 comparisons). Five of the 7 studies included fewer than 50 participants.

Outcomes were categorized as symptoms, which reflected subjective feeling and the judgment of the patients, and clinical signs, which reflected objective judgment of the observer. A meta-analysis of 2 trials did not find a statistically significant difference between hyaluronic acid and placebo on short-term (less than 3 months) improvement in symptoms (risk ratio [RR]: 1.24; 95% CI: 0.72 to 2.14). Similarly, a pooled analysis of 3 trials did not find a significant difference between hyaluronic acid and placebo on short-term improvement of clinical signs (RR: 1.69; 95% CI: 0.80 to 3.57). However, a pooled analysis of 2 studies found a statistically significant between-group difference in long-term effect on clinical signs (RR: 1.71; 95% CI: 1.05 to 2.77) (long-term was defined as 3 months or longer). For the comparison between hyaluronic acid and glucocorticoids, only short-term data were available for pooling. There were no significant differences between groups on short-term improvement in symptoms (2 studies, RR: 0.99; 95% CI: 0.84-1.17) or short-term improvement in clinical signs (3 studies, RR: 0.91; 95% CI: 0.66 to 1.25). Data were not pooled for studies on combination treatment (hyaluronic acid plus arthroscopy or arthrocentesis). The investigators concluded that there is insufficient consistent evidence to draw conclusions on the use of hyaluronate for treating patients with TMJ disorders.

Most of the published RCTs evaluating hyaluronic acid for treating TMJ disorders had small sample sizes, short follow-up times, and/or lack of blinding. Representative RCTs published through May 2012 are described below. RCTs with larger sample sizes and stronger methodology were selected for description.

A 2012 study by Manfredini and colleagues in Italy randomized 72 patients with TMJ dysfunction to one of 6 treatment groups: 1) single-session arthrocentesis alone; 2) single-session arthrocentesis plus corticosteroid; 3) single-session arthrocentesis plus low-molecular weight hyaluronic acid; 4) single-session arthrocentesis plus high-molecular weight hyaluronic acid; 5) 5 weekly 2-needle arthrocenteses plus low-molecular weight hyaluronic acid; or 6) 5 weekly single-needle arthrocenteses plus low-molecular weight hyaluronic acid. (15) A total of 60 out of 72 (83%) participants completed the study, between 9 and 12 patients per treatment group. In a

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per protocol analysis, there were no significant differences among groups on any of the outcome variables at the 3-month follow-up. For example, the percentage change in pain at rest ranged from -29.1% (standard deviation [SD]: 62.9%) in the group receiving 5 weekly single-needle arthrocenteses plus low-molecular weight hyaluronic acid to -38.4% (SD: 56.5%) in the group receiving a single session of arthrocentesis alone. Limitations of the study include the small number of patients in each treatment group and the substantial number of dropouts in absence of an intention-to-treat analysis.

A 2007 study by Bjorland and colleagues in Norway published a double-blind RCT that included 40 patients with osteoarthritis of the TMJ. (16) Patients received 2 injections, 14 days apart, of either sodium hyaluronate or corticosteroids. Pain was assessed using a visual analogue scale (VAS) from 0 to 100. Patients were followed for 6 months (assessed at 14 days, 1 month and 6 months). There was a statistically significant reduction in pain within each group at all of the follow-up points. At the 6-month follow-up, pain intensity (mean VAS score) was 14 (SD: 16) in the hyaluronic acid group and 31 (SD: 32) in the corticosteroid group; the difference was statistically significant ($p=0.0012$). The number of patients who were pain-free at 6 months was 7 of 20 (35%) in the hyaluronic acid group and 6 of 20 (30%) in the corticosteroid group (p value not reported).

Bertolami and colleagues published a double-blind placebo-controlled trial in 1993 which included 121 TMJ patients. (17) Patients needed to have a confirmed diagnosis of degenerative joint disease (DJD), reducing displaced disc (DDR) or non-reducing displaced disc (DDN), to have failed other non-surgical treatments, and to have severe dysfunction. Patients received a single injection of sodium hyaluronate or saline and were followed for 6 months. A total of 80 patients were randomized to the hyaluronate group and 41 to the placebo group. This included a total of 57 patients in the DJD group, 50 patients in the DDR group, and 14 patients in the DDN group. Fourteen of 121 patients (12%) were excluded from the analysis because they were found not to meet eligibility criteria. No significant differences in outcomes were seen for the DJD group. In the DDN group, there were significant between-group differences through 1 month, favoring the hyaluronic acid group. The number of patients in the DDN group who completed follow-up after 1 month was insufficient to draw meaningful conclusions about efficacy. In the DDR group, there were no statistically significant differences between groups in any outcome at 1 or 2 months. At 3 and 6 months, 2 out of 7 reported outcomes were significantly better in the hyaluronic acid group compared to the placebo group. At 5 months, 5 out of 7 reported outcomes were significantly better in the hyaluronic acid group. The 7 outcomes included 3 measures of dysfunction, 2 measures of patient perception of improvement, 2 measures of change in noise. The most consistent between-group differences in the DDR group were for the 2 measures of patient perception of improvement and one of the noise variables. There were fewer between-group differences on dysfunction measures.

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Summary

The evidence on diagnosis of temporomandibular joint dysfunction (TMJ) dysfunction supports the use of several diagnostic modalities, as listed in the policy statement. The evidence on treatment of TMJ dysfunction includes a large number of RCTs evaluating different treatment modalities, and systematic reviews of these RCTs. Based on this evidence and clinical guidelines, certain treatment modalities may be considered medically necessary, as listed in the policy statements.

Hyaluronic acid was added to the policy as new indications in 2012. There was mixed evidence on hyaluronic acid, with some studies reporting benefits in pain but some that do not. Overall, there is a lack of consistent evidence from RCTs that hyaluronic acid improves outcomes compared to placebo or an alternative treatment, and results of systematic reviews do not support a benefit. Thus, treatment of TMJ dysfunction with hyaluronic acid was added as investigational.

Practice Guidelines and Position Statements

American Association for Dental Research (AADR): A policy statement, revised in 2010, recommends the following for the diagnosis and treatment of TMJ disorders. (18)

“It is recommended that the differential diagnosis of TMDs or related orofacial pain conditions should be based primarily on information obtained from the patient's history, clinical examination, and when indicated, TMJ radiology or other imaging procedures. The choice of adjunctive diagnostic procedures should be based upon published, peer-reviewed data showing diagnostic efficacy and safety. However, the consensus of recent scientific literature about currently available technological diagnostic devices for TMDs is that except for various imaging modalities, none of them shows the sensitivity and specificity required to separate normal subjects from TMD patients or to distinguish among TMD subgroups...”

“It is strongly recommended that, unless there are specific and justifiable indications to the contrary, treatment of TMD patients initially should be based on the use of conservative, reversible and evidence-based therapeutic modalities. Studies of the natural history of many TMDs suggest that they tend to improve or resolve over time. While no specific therapies have been proven to be uniformly effective, many of the conservative modalities have proven to be at least as effective in providing symptomatic relief as most forms of invasive treatment...”

American Society of Temporomandibular Joint Surgeons: Consensus clinical guidelines, published in 2001, focus on TMJ associated with internal derangement and osteoarthritis. (19) For diagnosis of this type of TMJ dysfunction, a detailed history and, when indicated, general physical examination are recommended. Imaging of the TMJ and associated structures is also recommended. Options for basic radiography to provide information on temporal bone and condylar morphology include use of plain films, panoramic films, and tomograms. Also

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recommended is imaging of the disc and associated soft tissue with MRI or arthrography. Other diagnostic procedures that may be indicated include computed tomography, MRI, arthrography (for selected cases) and isotope bone scans.

Nonsurgical treatment should be considered first for all symptomatic patients with this condition. Recommended treatment options include change in diet, nonsteroidal anti-inflammatory drugs, maxillomandibular appliances, physical therapy, injections of corticosteroids or botulinum toxin, and behavior modification. If adequate symptom relief does not occur within 2-3 weeks, surgical consultation is advised. The guideline states that the following surgical procedures are considered to be accepted and effective for patients with TMJ associated with internal derangement/osteoarthritis:

- Arthrocentesis
- Arthroscopy
- Condylotomy
- Arthrotomy (prosthetic joint replacement may be indicated in selected patients who have severe joint degeneration, destruction, or ankylosis)
- Coronoidotomy/coronoidectomy
- Styloidectomy

American Dental Association: Selected statements from their dental practice parameters for TMJ, revised in 1997, (20) are:

- The key element in the design of this set of parameters for temporomandibular (TM) disorders is the professional judgment of the attending dentist, for a specific patient, at a specific time.
- Initially the dentist should select the least invasive and most reversible therapy that may ameliorate the patient’s pain and/or functional impairment.
- Any treatment performed should be with the concurrence of the patient and the dentist...
- The dentist should evaluate the effectiveness of initial therapy prior to considering more invasive and/or irreversible therapy.
- The dentist should counsel the patient that TM disorders are often managed, rather than resolved, and that symptoms of TM disorders may persist, change, or recur intermittently.
- The patient should be informed that the success of treatment is often dependent upon patient compliance with prescribed treatment and recommendations for behavioral modifications. Lack of compliance should be recorded.
- When articular derangement and/or condylar dislocation has been determined to be the etiology of the patient’s pain and/or functional impairment, manual manipulation of the mandible may be performed by the dentist.
- Oral orthotics (guards/splints) may be used by the dentist to enhance diagnosis, facilitate treatment or reduce symptoms.

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- The dentist should periodically evaluate oral orthotics (guards/splints) for their effectiveness, appropriateness and possible risks associated with continued use.
- Before restorative and/or occlusal therapy is performed, the dentist should attempt to reduce, through the use of reversible modalities, the neuromuscular, myofascial and temporomandibular joint symptoms.
- The dentist may replace teeth, alter tooth morphology and/or position by modifying occluding, articulating, adjacent or approximating surfaces, and by placing or replacing restorations (prostheses) to facilitate treatment.
- Transitional or provisional restorations (prostheses) may be utilized by the dentist to facilitate treatment.
- Intracapsular and/or intramuscular injection, and/or arthrocentesis may be performed for diagnostic and/or therapeutic purposes.
- Orthodontic therapy may be utilized to facilitate treatment.
- Orthognathic surgery may be performed to facilitate treatment.
- When internal derangement or pathosis has been determined to be the cause of the patient’s pain and/or functional impairment, arthroscopic or open resective or reconstructive surgical procedures may be performed by the dentist.

V. DEFINITIONS

ANOMALY refers to a deviation from normal.

CONGENITAL refers to something, which is present at birth.

TINNITUS is a subjective ringing, buzzing, or hissing sound in the ear. For some patients, this causes only minor irritation; for others, it is disabling.

V. BENEFIT VARIATIONS

The existence of this medical policy does not mean that this service is a covered benefit under the member's contract. Benefit determinations should be based in all cases on the applicable contract language. Medical policies do not constitute a description of benefits. A member’s individual or group customer benefits govern which services are covered, which are excluded, and which are subject to benefit limits and which require preauthorization. Members and providers should consult the member’s benefit information or contact Capital for benefit information.

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VI. DISCLAIMER

Capital’s medical policies are developed to assist in administering a member’s benefits, do not constitute medical advice and are subject to change. Treating providers are solely responsible for medical advice and treatment of members. Members should discuss any medical policy related to their coverage or condition with their provider and consult their benefit information to determine if the service is covered. If there is a discrepancy between this medical policy and a member’s benefit information, the benefit information will govern. Capital considers the information contained in this medical policy to be proprietary and it may only be disseminated as permitted by law.

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VIII. CODING INFORMATION

Note: This list of codes may not be all-inclusive, and codes are subject to change at any time. The identification of a code in this section does not denote coverage as coverage is determined by the terms of member benefit information. In addition, not all covered services are eligible for separate reimbursement.

Covered when medically necessary:

| CPT Codes® | | | | | | | | |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 20605 | 21010 | 21050 | 21060 | 21070 | 21116 | 21240 | 21242 | 21243 |
| 21480 | 29800 | 29804 | 64400 | 64550 | 70100 | 70110 | 70250 | 70260 |
| 70328 | 70330 | 70332 | 70336 | 70350 | 70355 | 70450 | 70486 | 70487 |
| 70488 | 78300 | 97010 | 97024 | | | | | |

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| HCPCS Code | Description |
|-------------------|---|
| D0210 | INTRAORAL - COMPLETE SERIES (INCLUDING BITEWINGS) |
| D0220 | INTRAORAL - PERIAPICAL, FIRST FILM |
| D0240 | INTRAORAL - OCCLUSAL FILM |
| D0274 | BITEWINGS - FOUR FILMS |
| D0277 | VERTICAL BITEWINGS - 7 TO 8 FILMS |
| D0290 | POSTERIOR-ANTERIOR OR LATERAL SKULL AND FACIAL BONE SURVEY FILM |
| D0320 | TEMPOROMANDIBULAR JOINT ARTHROGRAM, INCLUDING INJECTION |
| D0321 | OTHER TEMPOROMANDIBULAR JOINT FILMS, BY REPORT |
| D0322 | TOMOGRAPHIC SURVEY |
| D0330 | PANORAMIC FILM |
| D0340 | CEPHALOMETRIC FILM |
| D0350 | ORAL/FACIAL PHOTOGRAPHIC IMAGES |
| D7880 | OCCLUSAL ORTHOTIC DEVICE, BY REPORT |
| D9940 | OCCLUSAL GUARD, BY REPORT |
| D9950 | OCCLUSION ANALYSIS - MOUNTED CASE |

*If applicable, please see Medicare LCD or NCD for additional covered diagnoses

Investigational; therefore not covered:

| CPT Codes® | | | | | | | |
|-------------------|--|--|--|--|--|--|--|
| 97026 | | | | | | | |

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| HCPCS Code | Description |
|-------------------|---|
| D7870 | ARTHROCENTESIS; WITHDRAWAL OF FLUID FROM A JOINT SPACE BY ASPIRATION. |
| D7899 | UNSPECIFIED TMD THERAPY, BY REPORT |
| E0720 | TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS) DEVICE, TWO LEAD, LOCALIZED STIMULATION |
| E0730 | TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS) DEVICE, FOUR OR MORE LEADS, FOR MULTIPLE NERVE STIMULATION |
| E0731 | FORM-FITTING CONDUCTIVE GARMENT DELIV TENS/NMES |
| E0746 | ELECTROMYOGRAPHY (EMG), BIOFEEDBACK DEVICE |
| E1700 | JAW MOTION REHABILITATION SYSTEM |

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| | |
|-------|---|
| E1701 | REPLACEMENT CUSHIONS FOR JAW MOTION REHABILITATION SYSTEM, PACKAGE OF SIX |
| E1702 | REPLACEMENT MEASURING SCALES FOR JAW MOTION REHABILITATION SYSTEM, PACKAGE OF 200 |
| S8262 | MANDIBULAR ORTHOPEDIC REPOSITIONING DEVICE, EACH |
| S8990 | PHYSICAL OR MANIPULATIVE THERAPY PERFORMED FOR MAINTENANCE RATHER THAN RESTORATION |
| S3900 | SURFACE ELECTROMYOGRAPHY (EMG) |
| J7321 | HYALURONAN OR DERIVATIVE, HYALGAN OR SUPARTZ, FOR INTRA-ARTICULAR INJECTION, PER DOSE |
| J7323 | HYALURONAN OR DERIVATIVE, EUFLEXXA, FOR INTRA-ARTICULAR INJECTION, PER DOSE |
| J7324 | HYALURONAN OR DERIVATIVE, ORTHOVISC, FOR INTRA-ARTICULAR INJECTION, PER DOSE |
| J7325 | HYALURONAN OR DERIVATIVE, SYNVISCO OR SYNVISCO-ONE, FOR INTRA-ARTICULAR INJECTION, 1 MG |
| J7326 | HYALURONAN OR DERIVATIVE, GEL-ONE, FOR INTRA-ARTICULAR INJECTION, PER DOSE |

Not a Covered Service; therefore not covered:

| CPT Codes® | | | | | | | |
|------------|--|--|--|--|--|--|--|
| 99080 | | | | | | | |

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The following ICD-10 diagnosis codes will be effective October 1, 2014:

| ICD-10-CM Diagnosis Code* | Description |
|---------------------------|--|
| M26.60 | Temporomandibular joint disorder, unspecified |
| M26.69 | Other specified disorders of temporomandibular joint |
| M26.61 | Adhesions and ankylosis of temporomandibular joint |
| M26.62 | Arthralgia of temporomandibular joint |
| M26.63 | Articular disc disorder of temporomandibular joint |
| M26.69 | Other specified disorders of temporomandibular joint |

*If applicable, please see Medicare LCD or NCD for additional covered diagnoses.

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IX. POLICY HISTORY

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|---|--|
| MP 2.062 | CAC 11/30/04 |
| | CAC 9/13/05 |
| | CAC 11/29/05 |
| | CAC 1/30/07 |
| | CAC 3/25/08 |
| | CAC 5/26/09 |
| | CAC 11/30/10 Added acupuncture as investigational. Revised policy statement for physical medicine and TENS from medically necessary to investigational (consistent with BCBSA) Adopt BCBSA. |
| | CAC 4/24/12 Consensus review; no changes, references updated. |
| | CAC 10/30/12 Minor revision. Low-level laser therapy and hyaluronic acid added as investigational non-surgical treatments for treatment of TMJ. References updated. |
| | CODES REVIEWED 10/1/12 KLR |
| CAC 11/26/13 Consensus review. Joint vibration analysis added as an investigational diagnostic procedure. In the statement on medically necessary treatments, intra-oral reversible prosthetic devices changed to intra-oral removable prosthetic devices for clarification only. FEP variation revised to refer to the FEP manual. Rationale added. | |

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