Mandibular/Maxillary (Orthognathic) Surgery

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Policy
Blue Cross and Blue Shield of Kansas City (Blue KC) will provide coverage for orthognathic surgery when it is determined to be medically necessary because the criteria shown below are met.

Note: Orthognathic surgery may be excluded in some contracts. Verify benefits prior to review of Medical Necessity.

When Policy Topic is covered
Mandibular/Maxillary (orthognathic) surgery is considered medically necessary to treat a significant physical functional impairment when the procedure can be reasonably expected to improve the physical functional impairment. Significant physical functional impairment includes any one of the following:

Dysphagia when all of the following criteria are met:
- Symptoms related to difficulty chewing such as: choking due to incomplete mastication, or difficulty swallowing chewed solid food, or ability to chew only soft food or reliance on liquid food; and
- Symptoms must be documented in the medical record, must be significant and must persist for at least 4 months; and
- Other causes of swallowing or choking problems have been ruled out by history, physical exam and appropriate diagnostic studies.

OR

Speech abnormalities determined by a speech pathologist or therapist to be due to a malocclusion and not helped by orthodontia or at least six months of speech therapy.

OR

Intra-oral trauma while chewing related to malocclusion (e.g., loss of food through the lips during mastication, causing recurrent damage to the soft tissues
of the mouth during mastication).

OR

**Masticatory dysfunction or malocclusion** as documented by both 1 and 2 below:
1. Completion of skeletal growth with long bone x-ray or serial cephalometrics showing no change in facial bone relationships over the last three to six month period (Class II malocclusions and individuals age 18 and over do not require this documentation); **and**
2. Documentation of malocclusion with either intra-oral casts (if applicable) bilateral, lateral x-rays, cephalometric radiograph with measurements, panoramic radiograph or tomograms.

And ANY one of the following described in A, B, C or D:

A. Anteroposterior discrepancies of greater than 2 standard deviations from published norms defined as **either** of the following:
   - Maxillary/Mandibular incisor relationship: overjet of 5mm or more, or a value less than or equal to zero (norm 2mm). *(Note: Overjet up to 5mm may be treatable with routine orthodontic therapy)*; **or**
   - Maxillary/Mandibular anteroposterior molar relationship discrepancy of 4mm or more (norm 0 to 1mm).

B. Vertical discrepancies defined as **any** of the following:
   - Presence of a vertical facial skeletal deformity which is two or more standard deviations from published norms for accepted skeletal landmarks; **or**
   - Open bite (defined as **one** of the following):
     o No vertical overlap of anterior teeth; **or**
     o Unilateral or bilateral posterior open bite greater than 2mm; **or**
   - Deep overbite with impingement or irritation of buccal or lingual soft tissues of the opposing arch; **or**
   - Supra-eruption of a dentoalveolar segment due to lack of occlusion.

C. Transverse discrepancies defined as **either** of the following:
   - Presence of a transverse skeletal discrepancy which is two or more standard deviations from published norms; **or**
   - Total bilateral maxillary palatal cusp to mandibular fossa discrepancy of 4mm or greater, or a unilateral discrepancy of 3mm or greater, given normal axial inclination of the posterior teeth.

D. Asymmetries defined as the following:
   - Anteroposterior, transverse or lateral asymmetries greater than 3mm with concomitant occlusal asymmetry
When the condition involves treatment of skeletal deformity, the deformity must be documented either by computed tomography (CT), magnetic resonance imaging (MRI), or x-ray.

**Reconstructive:**
Mandibular/maxillary (orthognathic) surgery is considered **reconstructive** when intended to address a significant variation from normal related to accidental injury, disease, trauma, or treatment of a disease or congenital defect.

**When Policy Topic is not covered**
Mandibular/Maxillary (orthognathic) surgery is considered **cosmetic** when intended to change a physical appearance that would be considered within normal human anatomic variation.

A genioplasty (or anterior mandibular osteotomy) is considered **cosmetic** when not associated with masticatory malocclusion.

**Description of Procedure or Service**
Orthognathic surgery is the surgical correction of skeletal anomalies or malformations involving the mandible (lower jaw) or the maxilla (upper jaw). These malformations may be present at birth or they may become evident as the individual grows and develops. Orthognathic surgery can be performed to correct malocclusion, which cannot be improved with routine orthodontic therapy and where the functional impairments are directly caused by the malocclusion. The overall goal of treatment is to improve function through correction of the underlying skeletal deformity. The American Association of Oral and Maxillofacial Surgeons' classification of occlusion/malocclusion is as follows:

- **Class I** occlusion: Exists with the teeth in a normal relationship when the mesial-buccal cusp of the maxillary first permanent molar coincides with the buccal groove of the mandibular first molar
- **Class II** malocclusion: Occurs when the mandibular teeth are distal or behind the normal relationship with the maxillary teeth. This can be due to a deficiency of the lower jaw or an excess of the upper jaw, and therefore, presents two types: (1) Division I is when the mandibular arch is behind the upper jaw with a consequential protrusion of the upper front teeth. (2) Division II exists when the mandibular teeth are behind the upper teeth, with a retrusion of the maxillary front teeth. Both of these malocclusions have a tendency toward a deep bite because of the uncontrolled migration of the lower front teeth upwards
- **Class III** malocclusion: Occurs when the lower dental arch is in front of (mesial to) the upper dental arch. People with this type of occlusion usually have a strong or protrusive chin, which can be due to either horizontal mandibular excess or horizontal maxillary deficiency. Commonly referred to as an under bite.

Maxillary advancement is a type of orthognathic surgery that may be necessary to improve the facial contour and normalize dental occlusion when there is a relative
deficiency of the midface region. This is done by surgically moving the maxilla with sophisticated bone mobilization techniques and fixing it securely into place.

Depending on the soft tissue profile of the face or the severity of an occlusal discrepancy, problems with the lower face may require surgery on the mandible. This can be done in conjunction with or separate from maxillary surgery. The mandible can be advanced, set back, tilted or augmented with bone grafts. A combination of these procedures may be necessary. Following any significant surgical movement of the mandible, fixation may be accomplished with mini-plates and screws or with a combination of interosseous wires and intermaxillary fixation (IMF). Rigid fixation (screws and plates) has the advantage of needing limited or no IMF. However, if interosseous wiring is used, IMF is maintained for approximately six weeks.

Rationale
Orthognathic surgery is the revision by ostectomy, osteotomy or osteoplasty of the upper jaw (maxilla) and/or the lower jaw (mandible) intended to alter the relationship of the jaws and teeth. These surgical procedures are intended (i) to correct skeletal jaw and cranio-facial deformities that may be associated with significant functional impairment, and (ii) to reposition the jaws when conventional orthodontic therapy alone is unable to provide a satisfactory, functional dental occlusion within the limits of the available alveolar bone. Congenital or developmental defects can interfere with the normal development of the face and jaws. These birth defects may interfere with the ability to chew properly, and may also affect speech and swallowing. In addition, trauma to the face and jaws may create skeletal deformities that cause significant functional impairment. Functional deficits addressed by this type of surgery are those that affect the skeletal masticatory apparatus such that chewing, speaking and/or swallowing are impaired.

There is limited evidence of the effectiveness of orthognathic surgery on temporomandibular disorders. Abrahamsson et al (2007) examined if orthognathic surgery does affect the prevalence of signs and symptoms of temporomandibular disorders (TMDs). A literature survey in the PubMed and Cochrane Library electronic databases was performed and covered the period from January 1966 to April 2006. The inclusion criteria were controlled, prospective or retrospective studies comparing TMDs before and after orthognathic surgery in patients with malocclusion. There were no language restrictions, and 3 reviewers selected and extracted the data independently. The quality of the retrieved articles was evaluated by 4 reviewers. The search strategy resulted in 467 articles, of which 3 met the inclusion criteria. Because of few studies with unambiguous results and heterogeneity in study design, the scientific evidence was insufficient to evaluate the effects that orthognathic surgery had on TMD. Moreover, the studies had problems with inadequate selection description, confounding factors, and lack of method error analysis. The authors concluded that to obtain reliable scientific evidence, additional well-controlled and well-
designed studies are needed to determine how and if orthognathic surgery alters signs and symptoms of TMD.

Lindenmeyer et al (2010) performed a systematic review of the best available research literature investigating the relation of oral and maxillofacial surgical procedures to the onset or relief of chronic painful TMD. A comprehensive review of the databases CINAHL, Cochrane Library, Embase, Medline, NHS Evidence--Oral Health, PsycINFO, Web of Knowledge, and MetaLib was undertaken by 2 authors up to June 2009 using search terms appropriate to establishing a relation between orofacial surgical procedures and TMD. The search was restricted to English-language publications. Of the 1,777 titles reviewed, 35 articles were critically appraised, but only 32 articles were considered eligible. These were observational studies that fell into 2 groups; 9 were seeking to establish a surgical cause for TMD. Of these, only 2 of a series of 3 claimed that there was a significant link, but this claim was based on weak data (health insurance records) and was abandoned in a subsequent report. Twenty-three studies were seeking to achieve relief by orthognathic surgical intervention. These were also negative overall, with 7 articles showing varying degrees of mostly non-significant improvement, whereas 16 showed no change or a worse outcome. No published report on the putative effect of implant insertion was found. The authors concluded that these apparently contradictory approaches underline a belief that oral surgical trauma or gross malocclusion has a causative role in the onset of TMD. However, there was no overall evidence of a surgical causal etiology or orthognathic therapeutic value. This review emphasized that it is in the patients' best interest to carry out prospective appropriately controlled randomized trials to clarify the situation.

In a Cochrane review, Luther et al (2010) examined the effectiveness of orthodontic intervention in reducing symptoms in patients with TMD (compared with any control group receiving no treatment, placebo treatment or reassurance) and investigated if active orthodontic intervention leads to TMD. The Cochrane Oral Health Group's Trials Register, CENTRAL, MEDLINE and EMBASE were searched. Hand-searching of orthodontic journals and other related journals was undertaken in keeping with the Cochrane Collaboration hand-searching program. No language restrictions were applied. Authors of any studies were identified, as were experts offering legal advice, and contacted to identify unpublished trials. Most recent search was April 13, 2010. All randomized controlled trials (RCTs) including quasi-randomized trials assessing orthodontic treatment for TMD were included. Studies with adults aged equal to or above 18 years old with clinically diagnosed TMD were included. There were no age restrictions for prevention trials provided the follow-up period extended into adulthood. The inclusion criteria required reports to state their diagnostic criteria for TMD at the start of treatment and for participants to exhibit 2 or more of the signs and/or symptoms. The treatment group included treatment with appliances that could induce stable orthodontic tooth movement. Patients receiving splints for 8 to 12 weeks and studies involving surgical intervention (direct exploration/surgery of the joint and/or orthognathic surgery to correct an abnormality of the underlying skeletal pattern) were excluded. The outcomes were: how well were the symptoms reduced, adverse effects on oral health and quality of life. Screening of eligible
studies, assessment of the methodological quality of the trials and data extraction were conducted in triplicate and independently by 3 review authors. As no 2 studies compared the same treatment strategies (interventions) it was not possible to combine the results of any studies. The searches identified 284 records from all databases. Initial screening of the abstracts and titles by all review authors identified 55 articles that related to orthodontic treatment and TMD. The full articles were then retrieved and of these articles only 4 demonstrated any data that might be of value with respect to TMD and orthodontics. After further analysis of the full texts of the 4 studies identified, none of the retrieved studies met the inclusion criteria and all were excluded from this review. The authors concluded that there are insufficient research data on which to base clinical practice on the relationship of active orthodontic intervention and TMD. There is an urgent need for high quality RCTs in this area of orthodontic practice.

References:

**Billing Coding/Physician Documentation Information**

21120 Genioplasty; augmentation (autograft, allograft, prosthetic material)
21121 Genioplasty; sliding osteotomy, single piece
21122 Genioplasty; sliding osteotomies, 2 or more osteotomies (eg, wedge excision or bone wedge reversal for asymmetrical chin)
21123 Genioplasty; sliding, augmentation with interpositional bone grafts (includes obtaining autografts)
21125 Augmentation, mandibular body or angle; prosthetic material
21127 Augmentation, mandibular body or angle; with bone graft, onlay or interpositional (includes obtaining autograft)
21141 Reconstruction midface, LeFort I; single piece, segment movement in any direction (eg, for Long Face Syndrome), without bone graft
21142 Reconstruction midface, LeFort I; 2 pieces, segment movement in any direction, without bone graft
21143 Reconstruction midface, LeFort I; 3 or more pieces, segment movement
in any direction, without bone graft

21145 Reconstruction midface, LeFort I; single piece, segment movement in any direction, requiring bone grafts (includes obtaining autografts)

21146 Reconstruction midface, LeFort I; 2 pieces, segment movement in any direction, requiring bone grafts (includes obtaining autografts) (eg, ungrafted unilateral alveolar cleft)

21147 Reconstruction midface, LeFort I; 3 or more pieces, segment movement in any direction, requiring bone grafts (includes obtaining autografts) (eg, ungrafted bilateral alveolar cleft or multiple osteotomies)

21150 Reconstruction midface, LeFort II; anterior intrusion (eg, Treacher-Collins Syndrome)

21151 Reconstruction midface, LeFort II; any direction, requiring bone grafts (includes obtaining autografts)

21154 Reconstruction midface, LeFort III (extracranial), any type, requiring bone grafts (includes obtaining autografts); without LeFort I

21155 Reconstruction midface, LeFort III (extracranial), any type, requiring bone grafts (includes obtaining autografts); with LeFort I

21188 Reconstruction midface, osteotomies (other than LeFort type) and bone grafts (includes obtaining autografts)

21193 Reconstruction of mandibular rami, horizontal, vertical, C, or L osteotomy; without bone graft

21194 Reconstruction of mandibular rami, horizontal, vertical, C, or L osteotomy; with bone graft (includes obtaining graft)

21195 Reconstruction of mandibular rami and/or body, sagittal split; without internal rigid fixation

21196 Reconstruction of mandibular rami and/or body, sagittal split; with internal rigid fixation

21198 Osteotomy, mandible, segmental;

21199 Osteotomy, mandible, segmental; with genioglossus advancement

21206 Osteotomy, maxilla, segmental (eg, Wassmund or Schuchard)

21208 Osteoplasty, facial bones; augmentation (autograft, allograft, or prosthetic implant)

21209 Osteoplasty, facial bones; reduction

21210 Graft, bone; nasal, maxillary or malar areas (includes obtaining graft)

21215 Graft, bone; mandible (includes obtaining graft)

21244 Reconstruction of mandible, extraoral, with transosteal bone plate (eg, mandibular staple bone plate)

21245 Reconstruction of mandible or maxilla, subperiosteal implant; partial

21246 Reconstruction of mandible or maxilla, subperiosteal implant; complete

21247 Reconstruction of mandibular condyle with bone and cartilage autografts (includes obtaining grafts) (eg, for hemifacial microsomia)

21248 Reconstruction of mandible or maxilla, endosteal implant (eg, blade, cylinder); partial

21249 Reconstruction of mandible or maxilla, endosteal implant (eg, blade, cylinder); complete

D7940 osteoplasty - for orthognathic deformities

D7941 osteotomy - mandibular rami

D7943 osteotomy - mandibular rami with bone graft; includes obtaining the
graft

D7944 osteotomy - segmented or subapical
D7945 osteotomy - body of mandible
D7946 LeFort I (maxilla - total)
D7947 LeFort I (maxilla - segmented)
D7948 LeFort II or LeFort III (osteoplasty of facial bones for midface hypoplasia or retrusion)-without bone graft
D7949 LeFort II or LeFort III - with bone graft
D7950 osseous, osteoperiosteal, or cartilage graft of the mandible or maxilla - autogenous or nonautogenous, by report
D7995 synthetic graft - mandible or facial bones, by report
D7996 implant-mandible for augmentation purposes (excluding alveolar ridge), by report

Additional Policy Key Words
N/A

Policy Implementation/Update Information
6/1/13 New policy; may be considered medically necessary.
6/1/14 No policy statement changes.
6/1/15 No policy statement changes.
6/1/16 No policy statement changes.
6/1/17 No policy statement changes.
6/1/18 No policy statement changes.
6/1/19 No policy statement changes.

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