

## Introduction

The word orthognathic comes from the Greek words for straighten and jaw. Orthognathic surgery is the surgical correction of abnormalities of the mandible and/or maxilla.<sup>1</sup> It involves the surgical manipulation of the elements of the facial skeleton to restore the proper anatomic and functional relationship in patients with dentofacial skeletal anomalies.<sup>2</sup>

Abnormalities generally occur as a result of a differential in growth between the upper facial skeleton and the lower facial skeleton, resulting in a discrepancy of the normal relationship that exists between the upper jaw (maxilla) and lower jaw (mandible). Genetic predisposition and acquired causes can influence the normal growth of the facial skeleton from syndromes such as Apert and Crouzon or from facial clefts. Traumatic events can displace the normal structural elements or may disturb future normal growth. Other etiologies that can result in significant dentofacial anomalies include neoplasms, surgical resection and iatrogenic radiation. Developmental anomalies however are the most common condition. All of these deformities may result in diminished bite forces, restricted mandibular excursions, abnormal chewing patterns, speech deficits, malocclusions and/or abnormal facial appearance. There is a relationship between facial skeletal abnormalities and malocclusions, including Class II (disto-occlusion), Class III (mesio-occlusion) and open-bite (teeth do not meet) deformities.

The exact incidence of facial deformities requiring orthognathic surgery is difficult to estimate because it includes a broad population of patients with deformities of congenital development and traumatic origin. The number of individuals with developmental facial deformities in the United States who may benefit from orthognathic surgery is estimated to be 1.5 to 2 million. Of this amount about 1 million (50-66%) present with Class II deformities and 0.5 million (25-33%) with Class III deformities.

A wide range of clinical presentations is possible and depends on the maxillofacial deformity. The presentation could include concave or convex facial profile, increases or decreases in facial height, acute to obtuse nasolabial angle; retruded or protruded chin; widened, constricted or narrowed alar base; excessive gingival tissue show; and lack of or excessive incisor display.<sup>2</sup>

A diagnosis is based on a comprehensive assessment that includes a clinical examination, skeletal evaluation with standardized radiographs and dental evaluation with dental casts. The clinical assessment includes the relative position and size of each of the facial skeletal elements, the degree of zygomatic projection and the maxillary and mandibular positions relative to each other and to the cranial orbital region.

There are limitations of non-surgical therapies to correct the maxillary and mandibular discrepancies. Clinical experience and the literature have demonstrated that, when indicated, orthognathic surgery leads to improvement in a variety of functional

parameters. The American Association of Oral and Maxillofacial Surgeons (AAOMS) has documented the criteria for orthognathic surgery which includes the treatment of maxillary and/or mandibular facial skeletal deformities associated with masticatory malocclusion such as specific anteroposterior, vertical, transverse discrepancies and asymmetries.<sup>2</sup>

In addition to the above conditions, the AAOMS states orthognathic surgery may be indicated in cases where there are specific documented signs of dysfunction involving airway dysfunction such as sleep apnea, temporomandibular joint disorders, psychosocial disorders and or speech impairments.

# MAHP Orthognathic Surgery Guidelines

## Medical Policy Statement

Orthognathic surgery is covered when provided by a participating provider, notified in advance, and meets the Medical Health Plan policy. Health Plans considers orthognathic surgery medically necessary for correction of skeletal deformities of the maxilla or mandible when clinical documentation indicates:

- a. skeletal deformities are contributing to medically significant functional impairment. i.e. airway and nutrition
- b. a physiological functional impairment would be improved by orthognathic surgery
- c. non-surgical treatment, such as dental therapeutics or orthodontics alone, have not adequately treated the condition.

## Criteria

The primary consideration is to establish the presence of a medical functional impairment due to skeletal malformation or anomaly of the maxilla and / or mandible.

Skeletal deformities related to masticatory dysfunction:

Documentation requirements:

- a. a-c above
- b. x rays to confirm diagnosis / discrepancy
- c. BMI
- d. Medical evidence of malnutrition
- e. Models and photos

Skeletal deformities related to airway dysfunction contribution to the skeletal deformity

Documentation requirements

- a. a-c above
- b. x rays to confirm diagnosis / deformity
- c. Obstructive sleep apnea indicated by AHI greater than **15** on sleep study
- d. Failed Two month trial of C-PAP where clinically appropriate

Orthodontic Treatment Prior to Request for Orthognathic Surgery: Orthodontic treatment may be needed prior to orthognathic surgery to position the teeth in a manner that will

provide for an adequate occlusion following surgical repositioning of the jaws. The interim occlusion that is achieved by orthodontic treatment may be dysfunctional prior to the completion of the orthognathic surgical phase of the treatment plan.

Documentation Requirements:

- a. a-c above
- b. a written explanation of the member's clinical course, including dates and nature of any previous treatment
- c. physical evidence of a skeletal, facial, or craniofacial deformity defined by study models and pre-orthodontic imaging
- d. To correct jaw and craniofacial deformities related to severe malnutrition secondary or handicapping malocclusion.
  - Severe malnutrition secondary or handicapping malocclusion is defined as a deformity where the patient has difficulty in swallowing or in the ability to chew only soft food or intake liquids. For these patients, there should be evidence of significant and persistent symptoms and other causes of swallowing and oral problems should have been evaluated. The Health Plan will require clinical evidence, such as weight loss or malnutrition.

## Exclusions

- A. Mentoplasty or genial osteotomies/ostectomies (chin surgeries) are considered cosmetic when performed as an isolated procedure to address genial hypoplasia, hypertrophy, or asymmetry, and may be considered cosmetic when performed with other surgical procedures.
- B. Orthognathic surgery performed primarily for cosmetic purposes are excluded.
- C. Orthodontic treatment expenses associated with the orthodontic phase of care, including braces, both pre- and post- surgical are considered dental in nature. Expenses associated with orthodontic phase of treatment (both pre- and post-surgical) are considered dental in nature and are not covered under medical plan.
- D. Orthognathic surgery for Myofacial pain Dysfunction (MPD) and/or Temporomandibular Joint Syndrome (TMJ). Evidence in peer-reviewed literature does not support the use of orthognathic surgery alone as a primary treatment of TMJ and there is no literature to support a cause-and-effect relationship between malocclusion and TMJ. Orthognathic surgery does not remove or improve a medical functional impairment for the following symptoms / conditions and are not covered:
  - 1. Myofascial, neck, head, and shoulder pain
  - 2. Popping / clicking of temporomandibular joint(s)
  - 3. Potential for development or exacerbation of temporomandibular joint dysfunction
  - 4. Teeth grinding
- E. Any malocclusion that is correctable by a non-surgical orthodontic or dental procedure
- F. Dental implants (including the implanted tooth and posts) for any orthognathic procedure
- G. Dental services related to the care, filling, removal or the replacement of teeth, and cleaning of teeth.
- H. Orthognathic surgery for cosmetic purposes with no evidence of a medical impairment associated with an over or under bite.
- I. Class I occlusion/malocclusions.

- J. Surgical adjustment of facial balance or facial proportion in the absence of skeletal functional impairment is considered cosmetic.

## Glossary of Terms

Alveolar or Alveolus – that portion of the upper and lower jaws that contain the teeth and form the dental arches

Apertgnathia – a type of malocclusion characterized by the premature occlusion of posterior teeth and the absence of anterior occlusion; sometimes referred to as open bite.

Class I occlusions 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. May be referred to as a deepbite deformity.

Class III malocclusion occurs when the lower dental arch is in front of the (mesial to) the upper dental arch. People with this type of malocclusion usually have a strong or protrusive chin commonly referred to as an underbite.

Genial – pertaining to the chin

Hyperplasia – an abnormal increase in cells in an organ or a tissue with consequent enlargement

Myofacial pain – pain involving the muscles of the head, neck, and upper back.

Mandible – lower jaw

Maxilla – upper jaw

Mentoplasty – surgical alteration of the chin. Also called genioplasty.

Masticatory – refers to masticatory muscles or chewing

Maxillary hyperplasia – Overgrowth of the maxilla, or upper jaw, often presenting as excess vertical height of the maxilla

Maxillary hypoplasia – an abnormally small or posteriorly positioned maxilla, or upper jaw, often accompanying cleft palate or other craniofacial syndromes

Micrognathia – an abnormally small mandible, or lower jaw

Occlusion – the way the teeth bite or come together. Occlusions may be normal or abnormal (malocclusion) and are classified as Class I, Class II, or Class III.

Malocclusion – any deviation from a physiologically acceptable relationship of the upper and lower teeth with each other.

Orthodontic – The dental specialty and practice of preventing and correcting irregularities of the teeth, as by the use of braces

Osteotomy – The incision, sectioning, or cutting of a bone, without removing any of its parts, for the purpose of repositioning it into a structurally correct location with itself and adjacent structures (bone cut).

-Linear osteotomy – relating to a line, or straight

-Sagittal osteotomy – relating to the median plane of the body or any plane parallel to it

Ostectomy – The excision, sectioning, or cutting of a bone for the purpose of removing a portion of the bone and repositioning it into a more structurally balanced relationship with itself and adjacent structures (bone removal).

Osteoplasty – A surgical procedure that is designed to change or modify the shape or configuration of a bone (bone graft).

Orthognathic surgery is the surgical correction of skeletal anomalies or malformations involving the mandible or maxilla. The word orthognathics means “straight jaws”. The procedures are intended to achieve facial balance between the middle and lower thirds of the face in vertical, transverse, and horizontal dimensions.

- surgical procedure includes osteotomy, ostectomy, or osteoplasty

- surgical procedure includes the provision of material to hold bones together such as plates, screws, wires

- these malformations may be developmental or they may be due to traumatic injuries to the facial bones.

- condition cannot be improved with routine orthodontic therapy AND the functional impairment(s) are directly caused by the malocclusion/malformation

- usually preceded by orthodontic therapy to attempt to correct malocclusion by conservative therapy or in preparation for surgery
- usually orthodontic consultation may be needed to confirm that orthognathic surgery would be needed or that the functional impairment would be improved with orthodontic therapy alone.

Prognathia – an abnormally large mandible, or lower jaw

Retrognathia – a posteriorly positioned mandible, or lower jaw

Retrognathia – most common problem for which orthognathic surgery is performed (sometimes referred to over bite).

Skeletal/facial anomalies are referenced as spatial (refers to space) planes: horizontal, vertical, transverse, or a combination.

Types of skeletal discrepancies:

<b>CPT Code Section</b>	
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; two pieces, segment movement in any direction, without bone graft
21143	Reconstruction midface, LeFort I; three 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; two pieces, segment movement in any direction, requiring bone grafts (includes obtaining autografts) (eg, ungrafted unilateral alveolar cleft)
21147	Reconstruction midface, LeFort I; three 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
21159	Reconstruction midface, LeFort III (extra and intracranial) with forehead advancement (eg, mono bloc), requiring bone grafts (includes obtaining autografts); without LeFort I
21160	Reconstruction midface, LeFort III (extra and intracranial) with forehead advancement (eg, mono bloc), requiring bone grafts (includes obtaining autografts); with LeFort I
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
21248	Reconstruction of mandible or maxilla, endosteal implant (eg, blade, cylinder); partial
21249	Reconstruction of mandible or maxilla, endosteal implant (eg, blade, cylinder); complete

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