AmeriHealth Caritas Ohio

Pediatric rhinoplasty

Clinical Policy ID: CCP.1332

Recent review date: 11/2024

Next review date: 3/2026

Policy contains: Adolescent; body dysmorphic disorder; cleft lip and cleft palate; nose-shaping; rhinoplasty.

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Coverage policy

Rhinoplasty is clinically proven and, therefore, may be medically necessary in members ages 16 years and younger to either restore nasal anatomy and function or promote the normal development and outgrowth of the nose. Clinical indications for rhinoplasty in this population include, but are not limited to (Albert, 2018; Ishii, 2017):

- Correction of the form or function of the nose caused by acute (≤ three months prior) trauma or congenital defects, such as cleft lip and/or palate.
- As an integral component of medically necessary septoplasty and documentation of gross nasal obstruction on the same side as the septal deviation.
- Correction of a constant or intermittent nasal airway obstruction occurring as a result of an internal or external nasal deformity (e.g., nasal valve collapse or vestibular stenosis), trauma, or disease, and all of the following criteria:
    - Nasal airway obstruction will not respond to septoplasty or turbinectomy alone.
    - Nasal airway obstruction is causing significant symptoms (e.g., chronic rhinosinusitis or difficulty breathing).
    - Obstructive symptoms do not respond to at least four weeks of conservative management (e.g., nasal steroids or immunotherapy).
    - Photographic evidence of an external nasal deformity and documentation of significant obstruction of one or both nares by nasal endoscopy, computed tomography scan, or other appropriate imaging modality.

Limitations

Rhinoplasty used to solely correct appearance in the absence of a functional impairment is considered experimental/investigational and not clinically proven.

Rhinoplasty in situations that do not require immediate correction of a form or functional impairment should be delayed, when possible, until after pubertal growth (Albert, 2018; Ishii, 2017).

Contraindications to pediatric rhinoplasty associated with poor surgical outcomes include, but are not limited to (Ishii, 2017):

- Intranasal substance abuse (e.g., cocaine).
- Psychological or psychiatric instability (e.g., unrealistic expectations, body dysmorphic disorder).
- Comorbid medical conditions that preclude surgical clearance (e.g., obstructive sleep apnea and coagulation disorders).

Consultation with other medical specialties (e.g., behavioral health, sleep medicine, and hematology) may be medically necessary to evaluate the perioperative risk of relative contraindications.

Alternative covered services

No alternative covered services were identified during the writing of this policy.

Background

Rhinoplasty, also called nose reshaping, is a surgical procedure that alters the structure or function of the external nose while maintaining or enhancing nasal airway function (American Society of Plastic Surgeons, 2023). Reasons for rhinoplasty may be functional, aesthetic, or both, and may involve adjunctive procedures to the internal nasal structures, such as the nasal septum, nasal valves, turbinates, or sinuses. There were 44,686 nose reshaping procedures performed in 2020 on Americans ages 13 to 19 years, representing one of the most common cosmetic surgical procedures in this age group (American Society of Plastic Surgeons, 2023).

Rhinoplasty procedures vary depending on the patient's goals, the anatomic problems, and the surgeon's preferences (American Society of Plastic Surgeons, 2020). The procedure may be done with the patient awake or under sedation or anesthesia, as a primary or revision surgery, and either closed (i.e., incision hidden inside the nostrils) or open (i.e., incision at the base of the nose). The length of recovery may vary depending on the extent of surgery.

Unlike the adult nose, the child's nose is growing, and anatomical structures are developing, resulting in differences in size, form, and structure of supporting cartilaginous and bony framework (Kopacheva-Barsova, 2016). Nasal growth continues after puberty and typically ends at age 16 to 18 years in females and 18 to 20 years in boys. The nasal septum is the dominant growth center of the nose. The wound healing capacity of pediatric nasal cartilage is poor, which limits the effectiveness of some surgical interventions.

Surgical techniques considered safe and effective in adults may have a negative outcome on growth, function, and aesthetics in children. The goals of rhinoplasty in children are to: 1) restore the anatomy and function, and 2) promote normal development and outgrowth of the nose. Rhinoplasty is often postponed until after the pubertal growth spurt to avoid possible growth disturbances to the nose and midface region that may result in underdevelopment, progressive malformations, and associated psychological sequelae of undergoing a potentially appearance-altering procedure. However, some situations may require immediate intervention (Kopacheva-Barsova, 2016).

Findings

We identified one systematic review of seven observational studies (n = 253 participants) (Gupta, 2017), one evidence-based guideline (Ishii, 2017), and two individual case series for this policy (Adil, 2014; Bae, 2013). The evidence base consists of low-quality evidence from retrospective, surgical case series. Limitations in the evidence base include small numbers of patients studied and incomplete reporting of patient characteristics, complications, and long-term outcomes including psychological consequences.

The majority of patients were male who were treated for either antecedent trauma, nasal obstruction, or cleft lip nasal deformity using an open approach, frequently with concurrent septoplasty. The results suggest rhinoplasty with or without adjunctive procedures is safe in children younger than age 16. Revisions occurred in approximately 14% of patients (Gupta, 2017). Where reported, aesthetic dissatisfaction (11.8%) and postoperative nasal obstruction (5.6%) were the most common complications. Other complications of the procedure may include (Ishii, 2017):

- Complications of anesthesia.
- Poor wound healing or scarring.
- Septal perforation (hole in the internal wall of the nose).
- Infection.
- Bleeding.
- Change in smell and taste.
- Numbness that persists.
- Nasal obstruction.
- Surgical revision.

According to the American Academy of Otolaryngology — Head and Neck Surgery, the indications for a rhinoplasty include (Ishii, 2017):

- Obstructed breathing (functional).
- Unsatisfactory appearance.
- Nasal injury (trauma) causing unsatisfactory appearance or breathing.
- Nasal birth defect impairing form or function.
- Acquired deformity due to trauma, tumor, or infection.

Certain comorbid conditions could modify or contraindicate surgery and require careful consideration for surgical candidacy (Ishii, 2017). They are:

- Obstructive sleep apnea — Patients with obstructive sleep apnea have an elevated risk for perioperative complications, but some with severe forms may benefit from rhinoplasty to reduce nasal resistance and improve compliance with established treatments, such as continuous positive airway pressure. Surgeons should coordinate care with a sleep specialist.
- Topical vasoconstrictive intranasal drugs, including intranasal cocaine and other stimulants — Chronic use of these drugs is associated with worsened surgical outcomes.
- Disorders of the coagulation cascade — These may increase the risk of thrombosis, but routine laboratory screening is not supported for elective surgery in the absence of additional risk factors.

Body dysmorphic disorder is a psychiatric disorder in which affected individuals express excessive preoccupation with nonexistent or minimal flaws or defects in their appearance. Unlike persons who are dissatisfied with their appearance, persons with body dysmorphic disorder often: 1) have a poor quality of life, with social isolation; 2) have unreasonable expectations for postoperative changes; and 3) are underdiagnosed (Joseph, 2017). As rhinoplasty is the most common surgical procedure received by persons with this disorder, careful psychosocial

assessment is an integral part of the preoperative workup. Body dysmorphic disorder is a contraindication to elective rhinoplasty, as symptoms may worsen post-operatively (Ishii, 2017).

In 2018, we added two analyses of the National Surgical Quality Improvement Program Pediatric data sets (Garg, 2018; Jubbal, 2017) and one international consensus report from the International Federation of Oto-Rhino-Laryngological Societies World Congress (Albert, 2018). The results confirm previous findings in this policy. No policy changes are warranted. The policy ID was changed from CP# 11.03.06 to CCP.1332.

In 2019, we replaced Panayi (2015) with Joseph (2017) and added three studies to the policy that confirm the safety and effectiveness of rhinoplasty procedures in children. Rhinoplasty was associated with few major complications (overall complication rate = 1.52%), although compared to older children (age ≥ 14 years), younger children (age < 5 years) were more likely to experience them (3.79% vs. 0.66%; *P* = .001) (Kamil, 2019). Adolescents who underwent septoplasty had a significantly higher incidence of re-deviation than their adult counterparts (11 [21.2%] vs. 39 [7.1%]) (Lee, 2018). Adolescents demonstrated a significant improvement in quality of life after septoplasty and functional septorhinoplasty procedures (*P* < .001), irrespective of gender, age, nasal trauma, prior nasal surgery, concurrent surgery, or presence of allergic rhinitis (Manteghi, 2018). No policy changes are warranted.

In 2020, we updated the references with no policy changes.

In 2021, we added one study (Doval, 2021, n = 1,839 patients) that compared immediate postoperative complications and cartilage graft preferences between plastic surgeons and otolaryngologists using data from the American College of Surgeons National Surgical Quality Improvement Program Pediatric database. The patients underwent primary, secondary or cleft rhinoplasty. Plastic surgeons performed 78.2% of cases and otolaryngologists performed 21.8% of cases. The results between surgeons and otolaryngologists showed comparable low 30-day complication rates after rhinoplasty with respect to wound dehiscence, surgical site infection, readmission, and reoperation. Plastic surgeons preferred using rib and ear cartilage and otolaryngologists prefer septal and ear cartilage. No policy changes are warranted.

In 2022, we updated the references with no policy changes.

In 2023, we added a retrospective cohort study comparing revision rates among 24,322 pediatric participants and 286,218 adult participants who underwent initial septoplasty. Compared to adults, children were more likely to receive a revision surgery (2.9% versus 1.1%) and to receive a rhinoplasty as their revision surgery (9.4% versus 5.3%). The causes of revision surgery require further research (Shah, 2022). No policy changes are warranted.

In 2024, we found one relevant systematic review. No policy changes are warranted. This systematic review analyzed 25 studies (n= 3,354) with unilateral cleft lip who underwent primary rhinoplasty during cleft repair. The studies varied in size from 10 to 1,200 patients and included single-surgeon case series, case–control studies, and a retrospective cohort study. Subjective outcomes were assessed in 10 studies, all of which supported primary rhinoplasty, while objective outcomes were measured in 18 studies, with 15 of 16 showing favorable results. Nasal growth and development were evaluated in nine studies; eight found no restriction in nasal development following primary rhinoplasty. Additionally, five studies reported that a significant percentage of patients—ranging from 43% to 100%—avoided the need for secondary rhinoplasty. Overall, the majority of studies indicate that primary cleft rhinoplasty leads to improved outcomes without inhibiting nasal growth (Zelko, 2022).

References

On October 4, 2024, we searched PubMed and the databases of the Cochrane Library, the U.K. National Health Services Centre for Reviews and Dissemination, the Agency for Healthcare Research and Quality, and the

Centers for Medicare & Medicaid Services. Search terms were “Rhinoplasty” (MeSH) and the free text terms “septoplasty” “pediatric rhinoplasty” and “nose reshaping.” We included the best available evidence according to established evidence hierarchies (typically systematic reviews, meta-analyses, and full economic analyses, where available) and professional guidelines based on such evidence and clinical expertise.

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Policy updates

8/2017: initial review date and clinical policy effective date: 10/2017

10/2018: Policy references updated. Policy ID changed.

10/2019: Policy references updated.

10/2020: Policy references updated.

10/2021: Policy references updated.

11/2022: Policy references updated.

11/2023: Policy references updated.

11/2024: Policy references updated.