Nasolabial folds are natural facial contours that can become more prominent with age, projecting a fatigued or drawn appearance. Reduction of the nasolabial folds is one of the most commonly performed dermal filler treatments.

**Indications**
- Nasolabial folds

**Anatomy**

**Wrinkles, folds, and contours.** Nasolabial folds, or melolabial folds, course diagonally in the midface from the nasal ala toward the corner of the lip (see Dermal Filler Anatomy section, Figs. 1 and 2). Many factors contribute to nasolabial fold formation including soft tissue volume loss and dermal atrophy, reduced skin elasticity, descent of malar fat pads, and hyperdynamic midface musculature. The lateral nasal artery is the main vascular supply for the nasal tip and ala. It is in close proximity to the nasolabial fold, 2–3 mm superior to the alar groove (see Dermal Filler Anatomy section, Figs. 3 and 5).
Patient Assessment
- Patients with mild, moderate, and severe static nasolabial folds are candidates for dermal filler treatments.
- Patients presenting with excess laxity and hanging skin folds usually require surgical intervention for significant improvement.

Contraindications
- See Contraindications in the Introduction and Foundation Concepts section.

Treatment Goals
- Reduction of nasolabial folds without full effacement.

Recommended Dermal Filler Product
- Basic hyaluronic acid (HA) dermal filler products that have lidocaine (HA-lidocaine) are recommended for treatment of nasolabial folds, such as Juvederm® Ultra XC, Juvederm® Ultra Plus XC or Restylane-L® (see Basic and Advanced Procedures in the Introduction and Foundation Concepts section).
- This chapter describes treatment of nasolabial folds with Juvederm Ultra Plus XC (HA-lidocaine).

Dermal Filler Treatment Volumes
- The estimated HA dermal filler volume necessary for treatment is based on the patient’s observed facial anatomy and volume loss in the treatment area. Typical starting volumes are listed as follows:
  - Mild nasolabial folds typically require a total volume of 0.8-mL HA-lidocaine.
  - Moderate nasolabial folds typically require a total volume of 1.6-mL HA-lidocaine.
  - Severe nasolabial folds typically require a total volume of 2.4-mL HA-lidocaine.

Equipment for Anesthesia
- Local infiltration injection supplies (see Equipment for Injectable Anesthetics in the Anesthesia section)
  - Lidocaine HCl 2% with epinephrine 1:100,000 buffered (referred to as buffered 2% lidocaine-epinephrine solution)
  - 30-gauge, ½-inch needle

Equipment for Dermal Filler Procedure
- General dermal filler injection supplies (see Equipment in the Introduction and Foundation Concepts section)
  - 30-gauge, ½-inch needle

Anesthesia Overview
- **Local lidocaine infiltration.** Buffered 2% lidocaine-epinephrine solution can be used to achieve anesthesia for nasolabial folds.
- Both folds are anesthetized using six injections of 0.1 mL for a total volume of 0.6 mL (Fig. 2).
See Injectable Anesthetics in the Anesthesia section for additional information on local infiltration methods. Sensitivity increases with proximity to the nose and anesthetic injections are started at the inferior portion of the fold.

- **Topical anesthetic.** Benzocaine:lidocaine:tetracaine (BLT) may be used as an alternative for patients with high pain thresholds (see Topical Anesthetics in the Anesthesia section).

### Dermal Filler Procedure Overview

- **Overview.** An overview of injection points and injection technique for treatment of nasolabial folds, using a HA dermal filler is shown in Figure 3.
- **Number of injections.** There are two linear thread injections and one fanning injection per side (see Techniques for Dermal Filler Injection in the Introduction and Foundation Concepts section). All injections are placed medial to the nasolabial folds. Injections start at the inferior most portion of the nasolabial fold and proceed superiorly toward the nose.
- **Injection depth.** Dermal filler is injected in the mid- to deep dermis for treatment of nasolabial folds.
Cautions
- The lateral nasal artery is the main vascular supply for the nasal tip and ala and it is avoided with treatment of the nasolabial folds.
- The nasolabial fold is a natural facial contour and full effacement can result in an undesirable simian appearance.

Performing the Procedure: Dermal Filler Treatment of Nasolabial Folds

Anesthesia
1. Clean and prepare the skin lateral to the nasolabial folds with alcohol.
2. Inject buffered 2% lidocaine-epinephrine solution subcutaneously as shown in Figure 2.
3. Allow a few minutes for anesthesia.

Dermal Filler
1. Position the patient in a 60-degree reclined position.
2. Prepare the nasolabial folds with alcohol.
3. The provider is positioned on the same side as the nasolabial fold to be injected.
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4. Attach a 30-gauge, ½-inch needle to the prefilled HA-lidocaine dermal filler syringe. Ensure that the needle is firmly affixed to the dermal filler syringe to prevent the needle popping off when plunger pressure is applied.

5. Prime the needle by depressing the syringe plunger until a small amount of dermal filler extrudes from the needle tip.

6. The first injection point is medial to the nasolabial fold at the inferior portion of the fold (Fig. 4). Insert the needle at a 30-degree angle to the skin, directing it toward the ala, and advance to the needle hub. Apply firm and constant pressure on the syringe plunger, while gradually withdrawing the needle to inject a linear thread of filler in the mid- to deep dermis.

7. The second injection point is approximately 1 cm superior to the first injection point and placed as above (Fig. 5).

8. The third injection point is 1 cm superior to the second injection point and the fanning technique is used. Insert the needle at a 30-degree angle to the skin and advance until the tip lies at the edge of the ala. Inject filler in a linear thread as described above. Without fully withdrawing the needle from the skin, redirect the needle inferiorly and medially using small angulations to ensure dermal filler placement is contiguous (Figs. 6A and 6B). Repeat until desired correction is achieved.

9. Compress the treatment area with thumb on the skin and first finger intraorally to smooth any visible or palpable bumps of filler product. If bumps do not easily compress, the area may be moistened with water and stretched between the provider’s fingers. Additional swelling and bruising commonly occur after compression and manipulation of filler product.

10. Repeat the above injections for the contralateral side of the face.
Dermal Filler Procedures

Tips

- Avoid placing filler product in the superficial dermis as this may result in an undesirable visible ridge of filler, which does not readily compress.
- Avoid treating lateral to the nasolabial folds as this can exacerbate the folds.
- Watch for tissue blanching of the nasal ala and other ischemic signs or symptoms. If ischemia occurs, manage as described in the Complications section.

Results

- Reduction of nasolabial folds is immediately evident at the time of treatment. Figure 1 shows a 38-year-old woman with moderate nasolabial folds before (A) and 1 week after (B) treatment with 1.6-mL HA dermal filler, Juvederm Ultra Plus.

Duration of Effects and Subsequent Treatments

- Visible correction of nasolabial folds typically lasts 9 months to 1 year after treatment.
- Subsequent treatment with dermal filler is recommended when the volume of dermal filler product is visibly diminished and nasolabial folds become more evident, prior to their pretreatment appearance.

Follow-ups and Management

Patients are assessed 4 weeks after treatment to evaluate for reduction of nasolabial folds. Common issues reported by patients during this time include the following:
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FIGURE 6  Third injection point for nasolabial fold dermal filler treatment (A) with medial fanning technique (B).
• **Bruising, swelling, erythema, and tenderness.** See Follow-ups and Management in the Introduction and Foundation Concepts section.

• **Persistent nasolabial folds.** Patients should be assessed for the following:
  - **Static nasolabial folds.** Additional dermal filler may be necessary if a volume deficit persists. Typically 0.4–0.8 mL HA-lidocaine will achieve the desired result.
  - **Dynamic nasolabial folds.** Combination treatment with botulinum toxin may be required to achieve optimal results in patients with deep dynamic nasolabial folds, see Combining Aesthetic Treatments later.

### Complications and Management

• General dermal filler complications and management are reviewed in the Complications section

• Tissue ischemia and tissue necrosis

  **Tissue ischemia** resulting from intravascular injection and occlusion of the angular artery may occur with nasolabial fold treatments. Signs of vascular compromise and ischemia include a violaceous reticular pattern or white blanching, and may be painful or painless. These changes may be seen on the nose and/or nasolabial fold, and can present immediately, or be delayed. One case report identified ischemic changes 6 hours after dermal filler treatment. Ischemia is managed urgently as it can rapidly progress to **tissue necrosis** (see Complications section for management).

### Combining Aesthetic Treatments and Maximizing Results

• **Botulinum toxin.** Some patients excessively contract the lip levator muscles during smiling resulting in deep nasolabial folds and a “gummy smile.” In these patients, combining dermal filler treatment of the nasolabial fold with botulinum toxin treatment of the levator labii superioris alaeque nasi muscle can improve reduction of nasolabial folds.

• **Dermal filler in adjacent areas.** Patients requiring nasolabial fold treatment may also require treatment of the malar area. Restoring midface volume often reduces nasolabial folds, and it is advisable to perform malar augmentation first and reassess nasolabial folds afterwards (see Malar Augmentation chapter).

• **Dermal filler layering.** Although moderate to severe nasolabial folds can be treated with an HA dermal filler, using the techniques described in this chapter, improved outcomes can often be achieved by layering two types of dermal fillers. Layering is considered an advanced procedure, which consists of placing a dermal filler with more structural support in areas of deep dermal volume loss, and overlaying it with a thinner, more malleable dermal filler to smooth superficial fine lines and wrinkles (see Layering Dermal Fillers chapter).

### Pricing

Dermal filler fees are based on the type of filler used, size and number of syringes, the injector’s skill, and vary according to community pricing in different geographic regions. Prices range from $500 to $800 per syringe of 0.8-mL HA for treatment of nasolabial folds.