



Natural Therapies & Prescriptions That Enhance Life.™

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Customized Medications for Sinus Therapies

ClearSpring Pharmacy can compound customized antibiotic, anti-inflammatory, and antifungal medications formulated specifically to treat sinus infections and other problems.

The following medications (with suggested dose in parentheses) can be prescribed alone, or in combination, to be administered BID or TID via your choice of delivery device:

- Amphotericin B (5mg)
- Acetylcysteine (200mg)
- Betamethasone(0.4mg)
- Budesonide (0.6mg)
- Clarithromycin (125mg)
- Ceftazidime (650mg)
- Ceftriaxone (500mg)
- Itraconazole (40mg)
- Levofloxacin (100mg)
- Mupirocin (20mg)
- Tobramycin (125mg)
- Vancomycin (160mg)

Often, multiple drugs can be delivered concurrently which is advantageous for the patient by reducing the time for therapy and the amount of total fluid delivered.

Most Commonly Prescribed Combinations

- Tobramycin (125mg) + Mupirocin (20mg) + Budesonide (0.6mg)/5ml
- Levofloxacin (100mg) + Itraconazole (40mg) + Budesonide (0.6mg)/5ml
- Ceftriaxone (500mg) + Itraconazole (40mg) + Budesonide (0.6mg)/5ml

All medications are provided in nebulizer vials.

Ask our pharmacist how to write these prescriptions if you are not sure. We can help you determine the best method to deliver the drugs, minimizing the fluid delivered and making it easy for your patients to stay on their therapeutic regimen.

Your Choice of Delivery Device:

- NasoNeb® Nasal Nebulizer. Use dual positive-pressure atomization device to irrigate the sinus cavities.
- NeilMed® Sinus Rinse Bottle. Add medication to 120ml of saline. Irrigate each nostril with 60cc of medicated saline.

When compounded medications are used in the NasoNeb® Nasal Nebulizer, it is important that an appropriate amount of saline or sterile water is dispensed to bring the delivered volume to 10 - 15 ml per dose.

Most prescriptions should include saline because sterile water is less comfortable and will cause a burning sensation in the nose. However, there are times when saline will cause the drug to precipitate. In such cases, the drug in question needs to be added to the saline by the patient at the last minute or sterile water should be considered as a delivery vehicle.

Please contact ClearSpring Pharmacy if you would like us to make a custom RX pad for convenient prescribing of any compounded preparation.

The NasoNeb® Nasal Nebulizer creates a positive pressure aerosol for topical delivery of medication to the sinonasal cavity. NasoNeb® Nasal Nebulizer is easy, quick and convenient, and is the only device that can deposit a low volume, high concentration of medication to the entire sinonasal region with minimal or no drug reaching the lungs. We can compound various prescription nebulizer solutions to meet each patient's specific needs. Up to 4 drugs can be combined, including drugs that were difficult to atomize using a traditional nebulizer.

- **A strong air stream** carries the aerosol deep into the nasal sinus cavity while providing a comfortable mist for the user.
- Double barrel atomization facilitates a fast 2 minute delivery of up to 4 drugs in up to 15 ml of nebulizer solution
- Treatment fits easily into a daily routine and improves compliance.
- **Physicians have the freedom** to design therapeutic regimens to suit each patient's situation.

Benefits of NasoNeb® Nasal Nebulizer:

- High Concentration of Medication
- Low Volume of Saline
- No Lung or Bronchial Deposition
- High Drug Retention
- Minimal Medication Waste



Two studies presented at the American Rhinologic Society (ARS) meeting demonstrated the deposition pattern of the aerosol generated by the NasoNeb® system in both pre- and post-surgical subjects. In each case, the authors reported that the NasoNeb system deposits aerosol throughout the sinonasal region, with one or the other reporting deposition in the anterior nasal cavity, olfactory cleft, middle meatus, sphenoid sinus, ethmoid cavity, maxillary sinus, frontal sinus and the post-surgical frontal neo-ostium.

The conclusions of one of the studies suggested that the NasoNeb system may be a better choice for delivering a high concentration of medication in a low fluid volume (10 ml) when compared with traditional sinus rinse bottles, which typically use 120ml of saline to deliver the same dose of medication. The vast majority of the 10 ml delivered via the NasoNeb® Nasal Nebulizer remains in the sinonasal cavity until the body clears it naturally.

NasoNeb® has the ability to aerosolize medications that were difficult or impossible to nebulize with previous nasal devices. In addition, the particle sizes produced by the NasoNeb® are designed to be large enough to be filtered by the nose before the aerosol reaches the oropharynx, so that the medication is not available for inhalation to the lungs.

Reference Studies:

1. A Comparative Study of the Distribution of Normal Saline Delivered by Large Particle Nebulizer vs. Large Volume/Low Pressure Squeeze Bottle - Yuri M. Gelfand, MD; Samer Fakhri, MD; Amber Luong, MD, PhD; Seth J. Isaacs, MD & Martin J. Citardi, MD
2. Prospective Evaluation of a Novel Powered Nasal Irrigator Device in the Post-FESS Cadaver Model - R. Peter Manes, MD & Pete S. Batra, MD
3. Fluid Residuals and Drug Exposure in Nasal Irrigation - R.J. Harvey, MD; N. Debnath, MD; A. Srubiski, MD; B. Bleier, MD & R.J. Schlosser, MD