



Nasal & Sinus Rinses / Nebulization

Nasal Irrigation – What You Need to Know

Cleaning the nose and sinuses with salt water, also known as saline, has been used for thousands of years. Washing the nasal passages with saline, is also called nasal - irrigation, nasal toilet, nasal douche and or nasal lavage. It is used to reduce nasal blockage and improve nasal drainage.¹ By washing away environmental irritants, like allergens, and infection, it helps heal the nasal passages. Typically medications, like steroids and/or antibiotics are added to saline irrigations to increase their effectiveness. Nasal saline that has a medication added to it is called a “compound”. Compounds are often only available only through special pharmacies called “compounding pharmacies”. Most compounding pharmacies that we recommend will ship medications directly to your home. We have no commercial relationship with any compounding pharmacies. (See pg. 2 Compounding Pharmacies)

Irrigations are usually recommended twice daily with cleansing of your irrigation device to prevent contamination. Keeping the irrigation device clean and free of contamination to prevent re-infection, is very important. (See pg. 2 Warning). There are many safe ways to rinse the nose and sinuses. Our recommendations are based upon many factors that include your comfort, cost effectiveness, and the nature of your inflammation. (See pg.3 “How to Clean Your Nasal Passages”¹)

1. Types of Irrigation solutions +/- medication:

- A. Saline – salt water solution, is also known as Sodium Chloride
 - i. Normal Saline (0.9% Sodium Chloride) – salt water solution compatible with normal body fluids
 - Homemade recipe 1 teaspoon of non-iodinated salt + ½ teaspoon of baking soda to 1 quart of distilled water OR to boiled tap water x 5 min, then cooled water to room temperature. Store unused portions in the refrigerator and remove only the portion to be used the following day.
 - Pre-made salt soda packets commercially available (e.g. NeilMed®) for individual use
 - ii. Hypertonic saline (more salty) recipe – 2-3 teaspoons + 1 teaspoon baking soda per quart of distilled water.
 - iii. Hypotonic saline (less salty water) is more comfortable for some patients
 - iv. Distilled water – may cause a burning feeling in your nose without salt added.
- B. Baby Shampoo + Saline – helps break up stubborn crusting – recipe = add 10 cc of Johnson & Johnson Baby Shampoo to the 1 quart of saline. Mix thoroughly. Refrigerate unused portions. Warm to room temp before use.
- C. Saline + Steroid (e.g. **BUDESONIDE SALINE IRRIGATION**)
 - i. Low systemic absorption topical steroids – budesonide, fluticasone, mometasone

If prescribed - you will receive 60 unit doses of the steroid prescribed from the pharmacy. Unit doses will arrive as either a liquid or as a powder in a capsule. Break apart the unit dose and mix the liquid or powder in 50 cc (ml) of saline (sodium chloride). Use 25 cc of the solution in each nostril morning and evening (twice a day). See irrigation instructions on page 4.

- ii. Higher Absorption – dexamethasone, betamethasone, triamcinolone
- D. Saline + Antimicrobial +/- Steroid
 - i. Antibacterial irrigation– for biofilm/ crusting bacteria (e.g. gentamicin, mupirocin, ceftazidime, clindamycin)

GENTAMICIN SALINE IRRIGATION: You can purchase 1 month supply from SNI- 6 vials of 80mg/2ml of Gentamicin; - 3 Tuberculin syringes with needles; 3 Liters of sodium chloride. **How to prepare 160 mgs Gentamicin/1 liter of Saline irrigation** - Mix 2 of 80mg/2ml vials with 1 liter/quart of saline (either homemade saline or 0.9% Sodium Chloride in liter bottle). Please refrigerate after first use. **Rinsing instructions** - Pour out 50cc of the Gentamicin/Saline mixture. Rinse each nostril with 25cc, twice a day. Each liter / quart should last approximately 10 days. Please read your irrigation work sheet for your recommended irrigation device and instructions. You can mix your budesonide (or other topical steroid) into this solution instead of plain saline if so instructed by your healthcare provider. Once refrigerated, please wait for mixture to reach room temperature or may have an “ice cream headache”. PLEASE BE CAREFUL IF YOU USE A MICROWAVE TO HEAT THIS IRRIGATION. YOU CAN INADVERTANTLY BURN YOURSELF. **Stop this medicine if you develop worsening hearing, ringing in your ears or balance problems as it rarely can affect your inner or middle ear functions.**



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Disposal of Syringes / Needles – Never place loose /used needles in public trash cans or recycling bins, and never flush them down a toilet. Place used syringes /needles in a puncture proof jug with a secure cap (e.g. empty milk jug empty laundry container, coffee can or soda bottle. Once the container is full or you no longer need to use these syringes or needles, take it to your local hospital emergency room to dispose of safely.

ii. Antifungal irrigation– for fungus associated CRS –can be very expensive

2. **SIDE EFFECTS** – nasal lavage or drug delivery can be associated a variety of side effects. If these should appear notify your health care provider. The most common include:
- A. Delayed nasal drainage/post nasal drip – Solution: change head position, irrigation pressure, or nebulize
 - B. Nasal bleeding – caused most often by repeated nasal irritation caused by the tip of the irrigation device. Solution: Take an “irrigation holiday” for 3- 7 days to promote healing and then resume rinsing with greater care not to scuff the nasal passage with device tip.
 - C. Nasal burning – Solution: change to more or less salty irrigation or a new medication added to saline
 - D. Irrigation fluid in middle ear – decreased hearing, ear fullness, clicking, popping, pressure dizzy sensation. Solution: change head position, irrigation pressure, or nebulize.

3. WARNINGS

- A. DO NOT USE TAP WATER that is NOT STERILIZED –Tap water that is not filtered, treated, or processed in specific ways is not safe for use as a nasal rinse. Some tap water contains low levels of organisms, such as bacteria and protozoa, including amoebas, which may be safe to swallow because stomach acid kills them. But these “bugs” can stay alive in nasal passages and cause potentially serious infections. Improper use of Neti pots may have caused two deaths in 2011 in Louisiana from a rare brain infection that the state health department linked to tap water contaminated with an amoeba called *Naegleria fowleri*.
- B. Patients on a severely salt-restricted diet can use lower salt concentrations and avoid swallowing substantial amounts of the nasal rinse.
- C. **CLEAN IRRIGATON DEVICE** -Prevent re-infection of your nose by cleaning your delivery system - Best to clean your device by rinsing after each use with soap and water or as advised by manufacturer of your device. At least once per week rinse your nasal rinsing device with 1 teaspoon of household bleach in 16 ounces distilled water (approximately 1 part bleach to 100 water) allow to air dry the device. Then remove bleach residue by rinsing your device with distilled water or previously boiled tap water prior to using the device.

4. **About Compounding Pharmacies** –. The recommended compounding pharmacies are those that many of our patients have had positive experiences with or very at the very least they have offered our patient’s very reasonable self-pay prices for compounding medication not covered by most insurance companies. We have no commercial relationships with any compounding pharmacy
5. **Insurance Coverage** Compound treatments are not typically FDA approved to be used as an irrigation therefore not covered by most insurance. Using these prescribed solutions is not experimental and is clinically found to be very effective for many patients.⁴ Most of these medications are not well absorbed by the body even when incidentally swallowed. Compounding pharmacies can vary substantially on price and sometimes it is worthwhile to shop around before deciding to have your prescription filled at one location. If your insurance company does cover compound therapies they could dictate where irrigation prescriptions should be filled.

References

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SNI – HOW TO CLEANS YOUR SINUS & NASAL PASSAGES

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	<u>Saline</u>	<u>Compound</u>	<u>SNI VIDEOS Available On-Line **</u>
Irrigation Solution		<u>Steroid</u>	
	Homemade – Normal	Budesonide / Mometasone	
	Pre-made Salt Packets	<u>Antibacterial</u>	
	Sterile Bottled Saline 0.9%	Gentamicin / Tobramycin Mupirocin Ceftazidime / Cefepime	
	Hypotonic Saline	Cipro / Levaquin Vancomycin	
	Hypertonic		
	Baby Shampoo Saline	<u>Antifungal</u>	
		Amphotericin B / Itraconazole	
Device		Neti Pot Squeeze Bottle -Nasopure® Squeeze Bottle -NeilMed® Bulb Syringe - NASOLINE® Water Pick type -SinuPulse Elite® Nebulizer - Nasoneb®	
Technique	Closed Sinuses	Neti -Gravity Pour technique Squeeze Bottle Positive Pressure	Nasal & Sinus Rinses For Narrow Sinus Openings Nasal & Sinus Rinses For Narrow Sinus Openings
	Open Sinuses	Maxillary/Ethmoid Flush & Gravity Frontal/Sphenoid Flush & Gravity	Nasal & Sinus Rinses For Surgically Widened Sinuses Nasal & Sinus Rinses For Surgically Widened Sinuses
	Ear, Neck, Balance Problems	Water Pick Type Pulse Irrigator Nebulizer	See Manufacturer See Manufacturer

**** SNI Videos are available for review on-line at <http://www.sniflmd.com/> > Nose and Sinuses > Nasal & Sinus Rinses**

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- 1) **Ear symptoms** can be caused by irrigation fluid going into the Eustachian Tube and into the middle ear. These include - annoying popping, clicking fullness, hearing loss associated with fluid in the ear, ringing sensation, balance problems. Please use caution especially when balance problems occur related to irrigation. This can be associated with increase your risk of falling at home. Ear symptoms - can sometimes be relieved by altering head position during the irrigation process or decreasing the amount of pressure used to deliver the solution.
- 2) **Nebulization** – This gentle technique is generally very well tolerated but can have three important disadvantages: [NasoNeb Nasal Nebulizer](#)
 - a) Does not physically wash the nasal or sinus passages –as is a benefit of the preferred sinus irrigations
 - b) Nebulizer devices can be expensive, more difficult to keep clean, and typically require electrical outlet
 - c) Deposits more medication in the body for absorption and systemic side effects
- 3) **Positive pressure irrigation** – Can be very helpful in selected circumstance and even preferred by some patients. These devices available for this type of irrigation include:
 - a) Squeeze bottle technique – e.g. NeilMed® Bottle
 - b) Electric Pulse irrigators – like water pick – these can be expensive, lack portability for travel, but can be very helpful when substantial sinus crusting is a problem or neck mobility is an issue. Examples are: [SinuPulse Elite®](#) & [Grossan Hydro Pulse®](#)

These devices are not our 1st choice recommendation because they:

 - i) Can be difficult to optimize/individualize/standardize proper amount of pressure necessary for each person.
 - ii) Are more likely to bother middle ear when used forcefully.
 - iii) Are more likely to lead to delayed drainage of irrigation when used forcefully.
 - iv) Do not consistently reach frontal or sphenoid sinuses without utilizing gravity dependent positioning.
 - v) Can be more complicated to keep clean.

4) Gravity & Pouring Techniques

- a) Neti Pot - [NeilMed® Neti Pot](#), [SinuCleanse Nasal Irrigation Cup](#) follow link
 - i) Leaning over a sink, tilt your head sideways with your forehead and chin roughly level to avoid liquid flowing into your mouth.
 - ii) Breathing through your open mouth, insert the spout of the saline-filled container into your upper nostril so that the liquid drains through the lower nostril.
 - iii) Clear your nostrils, then repeat the procedure, tilting your head sideways, on the other side

5) SNI Sinus Pour & Gravity Technique – Using either Bulb Syringe from SNI, [Nasaline Nasal Irrigator](#) or [Nasopure System](#)

i) *Maxillary & Ethmoid Sinus Irrigation Steps

- (1) Turn head sideways (e.g. RIGHT ear down).
- (2) Slightly twist chin-up toward ceiling.
- (3) Take a deep breath-in and hold your breath.
- (4) Flush irrigation into your lower nostril (e.g. RIGHT) and then count to 5.
- (5) Tilt head backwards.
- (6) Tilt head to other side - - so that upper ear (e.g. LEFT) moves sideways to down position.
- (7) Lean forward with your nose pointing to sink resume breathing through your mouth & allow to drain. (Then repeat process for opposite nostril.)

ii) **Frontal & Sphenoid Sinus Irrigation Steps

- (1) Once maxillary sinus irrigation steps are completed (above) and nearly all the irrigation has drained from your nose.
- (2) Lie on your stomach (prone) on top of your bed or kneel on the floor.
- (3) Hang your head forward and upside down by flexing your neck downwards.
- (4) Point the top of your head to the floor for 3-5 minutes by the clock.
- (5) Gently move to supine position by lying flat on your back for 3-5 minutes by the clock.
- (6) **DO NOT get up suddenly from this position as it can lead to a light headed sensation and you could pass out.**

