Nasal Douching

Using a nasal douche as a solo or adjunctive treatment is recognised as beneficial in reducing nasal symptoms where infection and/ or nasal allergy have been identified as a cause. Nasal douching or nasal irrigation as it is sometime called is a safe and simple system of washing out the nose and can be performed in several different ways.

Poor nasal ciliary function due to sino-nasal disease and inflammation can slow mucus transport. Nasal mucus contains inflammatory mediators along with allergens and when its' transportation through the nose becomes slow, inflammation can further increase due to mucus stagnation (2). Nasal irrigation is considered beneficial in removing thickened mucus and allergens likely to trigger allergic rhinitis, therefore reducing inflammation (11,16). Ear Nose and Throat surgeons routinely use nasal douching as a post-operative cleansing treatment to aid in the healing process after surgery and encourage ciliary function (2).

Nasal douching, also referred to as nasal irrigation, wash or lavage, rinses the nasal cavity with a saline solution. The saline solution can be either a balanced isotonic solution or stronger hypertonic solution, but is non-medicated. The saline solution is introduced into one nostril, cleansing the nasal cavity, and is then allowed to drain out. This is then repeated on the other side.

Nasal douching can be performed in several different ways:

1) Nasal douching can be performed as described in this document simply by sniffing the solution in to the nose, and allowing it to drain out.
2) It can also be performed using low positive pressure from a proprietary spray canister, or using gravity-based pressure with a teapot device, such as a 'neti pot'.
3) Higher volume application from a pump (high positive pressure) or squeezy bottle (low positive pressure) has maximum effect as, when applied into one nostril, the douching solution will drain from the other (4).

These devices and equipment are available to purchase online or over the counter and often make nasal douching easier to perform.

A balanced isotonic nasal douche solution is frequently advised to use approximately twenty minutes before applying a steroid nasal spray and can easily be made up at home for very little cost using homemade ingredients (9,14). Both proprietary sachets and solutions mixed from home ingredients to a defined recipe are equally effective and safe for use inside the nose (9). The Cochrane review (2016) states that nasal saline irrigations are easy for patients to administer and are unlikely to cause severe adverse events.

At times a stronger hypertonic solution is required and can be made by doubling the salt and sodium bicarbonate content to 2.5 ml but still mixing with 240 mls of water. This is useful for patients with chronic rhinosinusitis infection (6), but can be more uncomfortable due to the higher salt content. Caution should be taken with regards to sodium overload

ensuring patients do not swallow any solution (e.g. in patients with hypertension or renal disease).

Evidence suggests that high volume nasal douching using positive pressure devices (eg Neilmed SinuRinse bottles) and hypertonic solutions are effective in reducing symptoms of chronic rhinosinusitis (4,6), of which Allergic Rhinitis can be a precipitating factor. A Cochrane review in 2016 also offers evidence that nasal douching benefits patients with allergic rhinitis cleansing the nasal airway of mucus and debris, creating maximum surface exposure on which to apply medicated treatments. This, in turn, increases efficacy of the steroid nasal spray and may reduce the amount of spray required (14).

Nasal douching is not a medicated solution. An isotonic solution can be safely used by all age groups, adults and children (5, 6), to support daily nasal hygiene. It can be used as a base line preparation treatment or alone in mild symptomatic disease and is an alternative treatment when a person is unwilling or unable to use a medicated nasal spray containing steroid such as during pregnancy.

A solution can be prepared using household ingredients, or commercial products are available to the public from a pharmacy or online.

- There are several proprietary products on the market which aid in the application of a nasal douching solution. Please see table 1 below for examples.
- Using a proprietary product for children under twelve years or adults that are unsure may make nasal douching more acceptable and safer where there is uncertainty about mixing up a homemade solution.
- The ready mixed sprays available are very convenient for all users but particularly make nasal douching acceptable for younger children.
- Some companies provide the mixed dry ingredients in sachets to add to cooled boiled water to make a solution.
- Using commercial products will make the process of nasal douching easier but at considerable cost for the user.
- Using commercial products can support compliance in performing douching and encourage its regular use.

How to perform nasal douching

- Wash hands before performing the procedure
- Douching can be performed in the morning and or evening, or more frequently if severe infection is active and advised by a clinician.

A balanced isotonic solution can be made at very little cost using home ingredients.
The solution can be sniffed into the nose from a mug or cupped hands. No essential specialist equipment is required but devises and products are available for purchase to aid application.

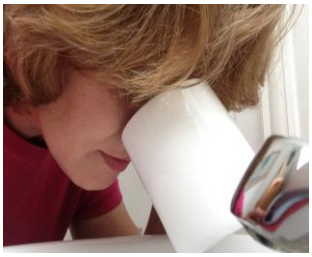
Ingredients for isotonic douching solution

240 mls previously boiled and cooled water

equal parts: 1.25 mls 1/4 teaspoon salt

1.25 mls 1/4 teaspoon bicarbonate of soda

ACTION		RATIONALE
Use clean equipment A spoon and mug in which to mix ingredients together	Ensure there are no visible residual crystals from previous douching use	Ensuring equipment is clean and free from food or crystal particles prevents risk of further nasal irritation
Measure out dry ingredients 1.25 mls (1/4) teaspoon salt 1.25 mls (1/4) teaspoon bicarbonate of soda	No specific type of salt is required but it must be clean and free from other food contaminates (ie non iodised as this can irritate the nasal mucosa) Bicarbonate of soda often referred to as baking soda is sold from the cooking section of most general food stores	The salt and bicarbonate together create a balanced isotonic solution This balanced mix should prevent the solution from stinging inside the nose. Slightly salty like our own tears
Mix dry ingredients with boiled water that has cooled down	Ensure the dry ingredients have dissolved before proceeding and ensure the solution is room temperature Do not keep solution ready mixed for longer than 24 hours Do not store in fridge Do not heat solution in microwave	The water must be boiled before use to allow for sterilization and to remove harmful elements from the tap water Using the solution at room temperature should be acceptable to the nose and will not cause burning from being too hot, or nasal sensitivity from being too cold



Lean over a sink **Bring mug of solution to nose** **Sniff a small amount of the fluid into the nose** for approximately two to three seconds **Alternatively** **Use cupped hands** **pour solution into hand and sniff from hand** **Take nose away from the mug** **Allow the liquid to run back out of nose into the sink**	Do not sniff up large amounts of liquid **<u>Do not swallow liquid</u>**	Keeping the head bent forward will close and block the back of the throat to prevent swallowing or choking on the liquid. A person will only be able to take a small amount of douche solution into the nose at each sniff. This should run back out of the nose into the sink once sniffing has stopped. The process should be repeated using up as much of the liquid in the mug as possible. Douching means washing. The liquid should be sniffed into the nose and allowed to run back out to cleans the nose
To cleanse each side of the nasal cavity block one nostril with your finger as you sniff the solution, release and block the other nostril as you sniff the solution again		This ensures that the solution has entered both sides of the nose
Repeat this action several times as tolerated ideally until all the solution has been used	The nose may water naturally after nasal douching and this should be expected	The natural cleansing processes of the nose will be stimulated by douching
After nasal douching blow your nose and let it rest for 10-20 minutes before applying any treatment spray	Always blow the nose gently so as not to over stimulate or cause damage inside the nose	If nasal treatments are applied whilst the nose is watering the treatment spray will be washed out of the nose reducing its effectiveness.

<u>Alternative devices and ready mixed preparations to aid douching</u>

1. A syringe may be used to squirt the solution into the nose

2. Using a device like a small jug or tea pot to pour the solution into one nostril allowing gravity to let it run out through the other nostril has been successfully used by many of Eastern origin. The mouth is kept open to breathe through whilst performing the process. *Jala-neti*, means to cleanse the nose with water, which is an old yogic technique from India.
   Neti-pots are specifically designed for this purpose and are available on the commercial market (Garavello et al. 2003).

3. Using a squeezy bottle is a high-volume, low-pressure system. The solution is squirted into one nostril allowing it to run out of the other nostril and has been found

to be a very effective delivery device. The mouth is kept open to breathes through whilst performing the process.
SinuRinse bottles are available on the commercial market.

4. A douching spray is a ready mixed solution in a canister needing no preparation. This makes it a very convenient device readily available and easy to apply and incorporate into daily life. The convenience will encourage compliance toward regular use of nasal douching and likely other treatment regimes. This can be especially useful when staying away from home to support continued treatment use. Sterimar Spray and Nasal Mist are available on the commercial market.

Nasal Douching Aids for purchase: Table1

Manufacturer	**Name of product**	**Where can be purchased**
Neilmed products Except for the spray these products come with sachets of mixed powder to add to cooled previously boiled water to make up a solution. www.Neilmed.com	SinuRinse Bottle adult and child sizes Neti pot Sinugator pulsing irrigator Nasal mist	From a UK pharmacy or online
Sterimar www.sterimarnasal.co.uk	Sterimar seawater spray Isotonic or hypertonic	From a UK pharmacy or online
Emcur www.emcur.co.uk	Emcur irrigation system	From a UK pharmacy or online
Yogamatters	Neti pot - plastic, White	
Acu-Life	Neti-Rinse Nasal Irrigator	Online
Toddletime Ltd	Emmay Care Health Nasal Aspirator	Online

References:

1. ARIA, *Allergic Rhinitis and its Impact on Asthma* (2007). Full Text documents and resources: http://www.whiar.org

2. Bastier PL, Lechot A, Bordenave L, Durand M, de Gabory L, (2015) Nasal irrigation: From empiricism to evidence-based medicine. A review *European Annals of Otorhinolaryngology, Head and Neck diseases 132 (2015)281-285*

3. Brown CL, Graham SM (2004). *"Nasal irrigations: good or bad?"*. *Curr Opin Otolaryngol Head Neck Surg* **12** February (1): 9–13

4. Chong L, Head K, Hopkins C, Philpott C, Glew S, Scadding G, Burton MJ, Schilder AGM (2016) *Cochrane review* April 2016, Saline irrigation for chronic rhinosinusitis , http://www.cochrane.org/CD011995/ENT

5. Dunn JD, Dion GR, McMains KC (2013) Efficacy of nasal irrigations and nebulizations for nasal symptom relief. Curr Opin Otolaryngol Head Neck Surg. Jun;21(3):248-51.

6. Fokkens WJ, Lund VJ, Mullol J, et al. (2012) EPOS: European position paper on rhinosinusitis and nasal polyps 2012. A summary for otorhinolaryngologists. *Rhinology*. 2012 Mar;50(1):1-12.

7. Garavello W, Romagnoli M, Sordo L, Gaini RM, Oi Berardino C, Angrisano A. (2003) Hypersaline nasal irrigation in children with symptomatic seasonal allergic rhinitis: A randomised study. *Pediatric Allergy and Immunology.* **14**: 140-143

8. Kristina E. Hermelingmeier, Rainer K. Weber, Martin Hellmich, Christine P. Heubach, and Ralph Mösges, (2012), Nasal irrigation as an adjunctive treatment in allergic rhinitis: A systematic review and meta-analysis Am J Rhinol Allergy. 2012 Sep-Oct; 26(5): e119–e125.

9. Lilic N, Waldvogel-Thurlow, Douglas RG (2014) Physical Characteristics of commercial and home-made nasal lavage solutions, *Journal of Laryngology & Otology (2014), 128 (suppl. S1). S40-S43*

10. Middleton PG Geddes DM Alton EW (1993) Effect of amiloride and saline on nasal mucociliary clearance and potential difference in cystic fibrosis and normal subjects *Thorax* **48**: 812-816

11. Olson, D. E. L.; Rasgon, B. M.; Hilsinger, R. L. (2002). "Radiographic Comparison of Three Methods for Nasal Saline Irrigation". *The Laryngoscope* **112** (8): 1394–1398.

12. Pynnonen, M. A.; Mukerji, S. S.; Kim, H. M.; Adams, M. E.; Terrell, J. E. (2007). "Nasal Saline for Chronic Sinonasal Symptoms: A Randomized Controlled Trial". *Archives of Otolaryngology - Head and Neck Surgery* **133** (11): 1115–1120.

13. Scadding GK (1999) Nasal douching as a valuable adjunct in the management of chronic rhinosinusitis. *Rhinology* **37**(1):29-32.

14. Scadding GK, Durham SR, Mirakian R, Jones NS, Drake-Lee AB, Ryan D, Dixon TA, Huber PAJ and Nasser SM. (2008) BSACI guidelines for the management of allergic and non-allergic rhinitis http://www.bsaci.org/ guidelines *Clin.Exp.Allergy* Vol 38, 19-42

15. Tomooka LT, Murphy C, Davidson TM (2000). "Clinical study and literature review of nasal irrigation". *Laryngoscope* **110** (7): 1189–93.

16. Wingrave W (1902) The nature of discharges and douches. *Lancet* May: 1373-1375