

Standardized Sinus Rinse Protocol for Patients with Primary Ciliary Dyskinesia: A Collaboration Between Otolaryngology and Pulmonology Practices to Harmonize Education on Nasal Irrigation

Lincoln Christenson¹, Briana Escobar², Elizabeth Franck Thompson², Alex Coyne³. Anne Griffiths^{4,5}
1. Department of Special Diagnostics, Children's Minnesota 2. Children's Minnesota Research Institute, Children's Minnesota. 3. Department of Ear Nose and Throat, Children's Minnesota 4. Division of Pulmonary Medicine, Children's Minnesota 5. Children's Respiratory & Critical Care Specialists

Background

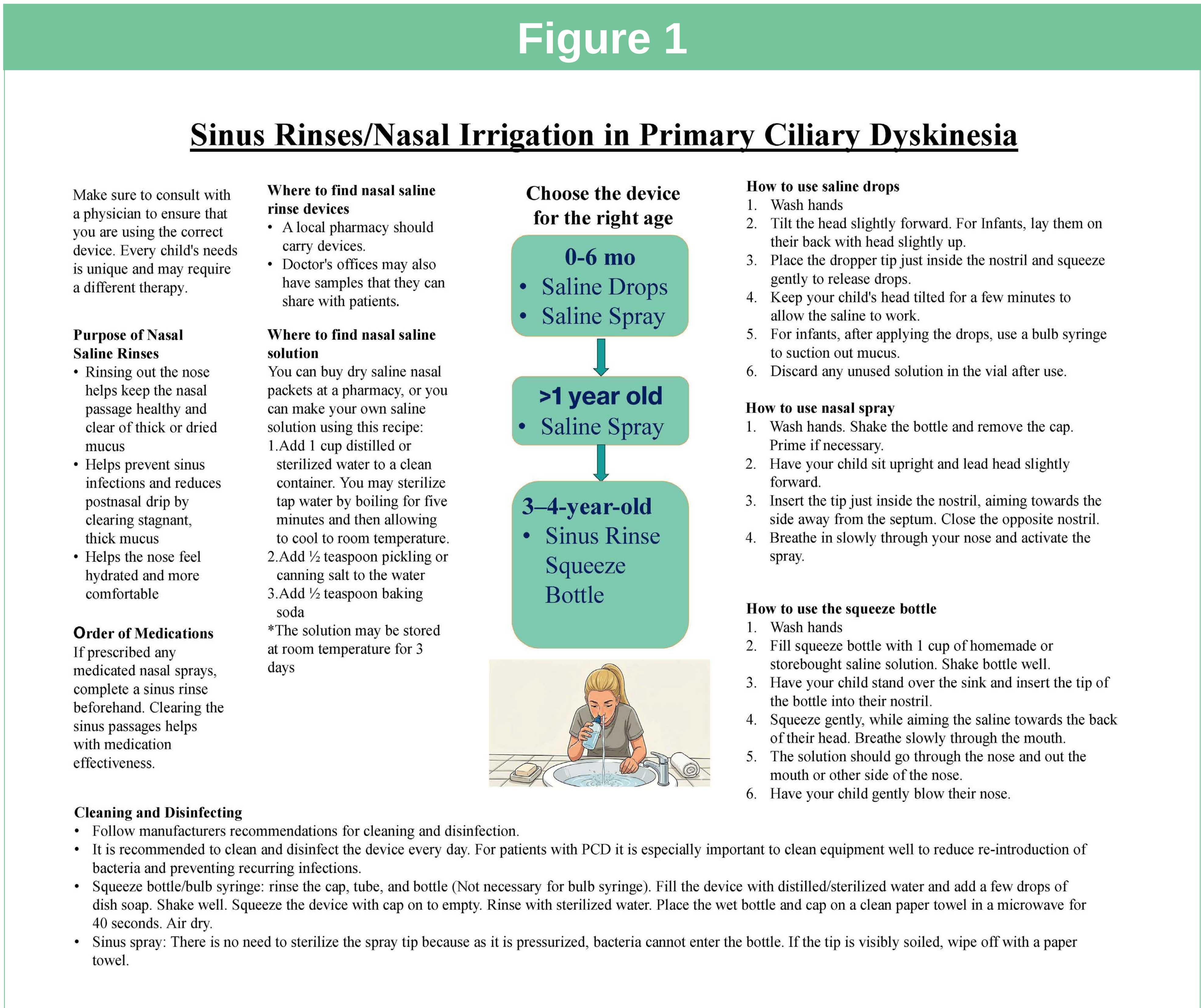
- Primary Ciliary Dyskinesia is a chronic respiratory disease that impacts the sinus airways potentially leading to chronic rhinosinusitis (CRS).
- Management of CRS includes nasal irrigation (NI) or sinus rinses (SR) ⁽¹⁾, which are associated with improved health-related quality of life and total symptom scoring ⁽²⁾.
- The Primary Ciliary Dyskinesia Foundation (PCDF) has no standard guideline for SR/NI including administering, disinfection, or adherence.
- Patients with PCD at Children's Minnesota see both otolaryngology (ENT) and respiratory therapists (RT) as part of their routine care.
- Patients see ENT for initial education on SR/NI while RTs conduct respiratory therapy reviews (RTR). RTRs include review of upper and lower airway clearance and respiratory treatments done at home, including SR/NI.

Methods

- Inconsistencies in SR/NI protocols between ENT and RT were identified through conversations with patients and families during RTRs .
- A literature review was conducted; Children's ENT clinic, hospital and pulmonary clinic guidance were assessed. New educational materials and hands-on teaching methods for clinic patients were established.

Results

Children's Minnesota identified a gap in instructions and reported practices related to several components of SR/NI. RT, Pulmonary and ENT teams developed a standard protocol for teaching SR/NI (Figure 1) and a patient pamphlet which includes information for cleaning, disinfecting, and administration of saline for SR/NI to be distributed to patients.



Conclusions

- A standardized approach to SR/NI education was created for patients with PCD for use in both the ENT and pulmonary clinic at Children's Minnesota.
- This coordinated approach was done to reduce confusion and increase patient confidence.
 - Regular meetings occur with ENT and pulmonary clinics to review education materials and discuss evolving guidance.
 - Given the frequency of RT visits and expertise in lower airway clearance as well as equipment cleaning and disinfection, RTs at our center welcomed gaining expertise in SR/NI as a tool for upper airway clearance.

Future

- Plans include surveying the PCDF CRCN to determine how nasal rinse practice and education compare across the network.

References can be viewed by scanning the QR code.

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References:

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Figure 1¹

Sinus Rinses/Nasal Irrigation in Primary Ciliary Dyskinesia

Make sure to consult with a physician to ensure that you are using the correct device. Every Child's needs is unique and may require a different therapy.

Purpose of Nasal Saline Rinses

- Rinsing out the nose helps keep the nasal passage healthy and clear of thick or dried mucus
- Helps prevent sinus infections and reduces postnasal drip by clearing stagnant, thick mucus
- Helps the nose feel hydrated and more comfortable

Order of Medications

If prescribed any medicated nasal sprays, complete a sinus rinse beforehand. Clearing the sinus passages helps with medication effectiveness.

Cleaning and Disinfecting

- Follow manufacturers recommendations for cleaning and disinfection.
- It is recommended to clean and disinfect the device every day. For patients with PCD it is especially important to clean equipment well to reduce re-introduction of bacteria and preventing recurring infections.
- Squeeze bottle/bulb syringe: rinse the cap, tube, and bottle (Not necessary for bulb syringe). Fill the device with distilled/sterilized water and add a few drops of dish soap. Shake well. Squeeze the device with cap on to empty. Rinse with sterilized water. Place the wet bottle and cap on a clean paper towel in a microwave for 40 seconds. Air dry.
- Sinus spray: There is no need to sterilize the spray tip because as it is pressurized, bacteria cannot enter the bottle. If the tip is visibly soiled, wipe off with a paper towel.

Where to find nasal saline rinse devices

- A local pharmacy should carry devices.
- Doctor's offices may also have samples that they can share with patients.

Where to find nasal saline solution

You can buy dry saline nasal packets at a pharmacy, or you can make your own saline solution using this recipe:

1. Add 1 cup distilled or sterilized water to a clean container. You may sterilize tap water by boiling for five minutes and then allowing to cool to room temperature.
2. Add ½ teaspoon pickling or canning salt to the water
3. Add ¼ teaspoon baking soda

*The solution may be stored at room temperature for 3 days

Choose the device for the right age

0-6 mo

- Saline Drops
- Saline Spray

>1 year old

- Saline Spray

3-4 year old

- Sinus Rinse Squeeze Bottle



How to use saline drops

1. Wash hands
2. Tilt the head slightly forward. For Infants, lay them on their back with head slightly up.
3. Place the dropper tip just inside the nostril and squeeze gently to release drops.
4. Keep your child's head tilted for a few minutes to allow the saline to work.
5. For infants, after applying the drops, use a bulb syringe to suction out mucus.
6. Discard any unused solution in the vial after use.

How to use nasal spray

1. Wash hands. Shake the bottle and remove the cap. Prime if necessary.
2. Have your child sit upright and lead head slightly forward.
3. Insert the tip just inside the nostril, aiming towards the side away from the septum. Close the opposite nostril.
4. Breathe in slowly through your nose and activate the spray.

How to use the squeeze bottle

1. Wash hands
2. Fill squeeze bottle with 1 cup of homemade or storebought saline solution. Shake bottle well.
3. Have your child stand over the sink and insert the tip of the bottle into their nostril.
4. Squeeze gently, while aiming the saline towards the back of their head. Breathe slowly through the mouth.
5. The solution should go through the nose and out the mouth or other side of the nose.
6. Have your child gently blow their nose.

¹ Image included in Figure 1 was created using Google Gemini AI