



CURRICULUM VITAE



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ORGANISASI

1. Pengurus inti PP PERHATI-KL & PERHATI-KL Cabang Sumatera Utara
2. Pengurus IDI Cabang Sumatera Utara & Cabang Medan
3. Anggota Kelompok Studi Alergi Imunologi Indonesia
4. Anggota Kelompok Studi Rinologi Indonesia

PUBLIKASI

1. The CD4+CD25+FOXP3+ Regulatory T Cells Regulated by MSCs Suppress Plasma Cells in A Mouse Model of Allergic Rhinitis
2. Rats Umbilical Cord Mesenchymal Stem Cells Ameliorate Mast Cells and HSP70 on Ovalbumin-Induced Allergic Rhinitis Rats
3. The Relationship between Serum Vitamin D Levels with Allergic Rhinitis
4. Serum 25-Hydroxyvitamin D Levels as a Predictive Factor for Allergic Rhinitis
5. The Role of Stem Cell Regulating T Reg Cell in Allergic Rhinitis
6. Down Regulation of IL-6 And TNF- α Expression with Mesenchymal Stem Cells Therapy in Allergic Rhinitis Rats
7. Umbilical Cord Mesenchymal Stem Cell Modulate Regulatory T Cells in Allergic Rhinitis Rat Model

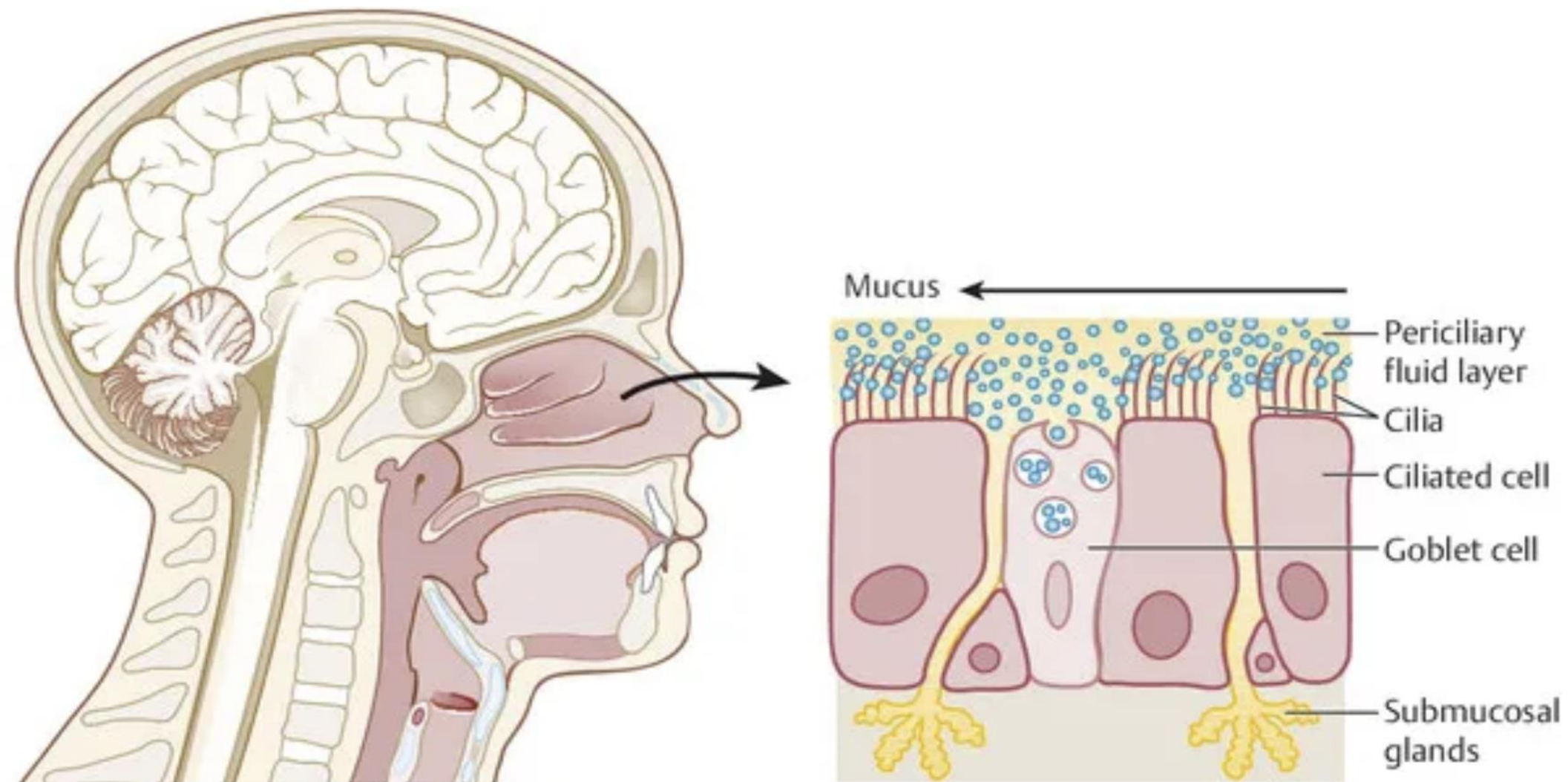
Nasal Irrigation,



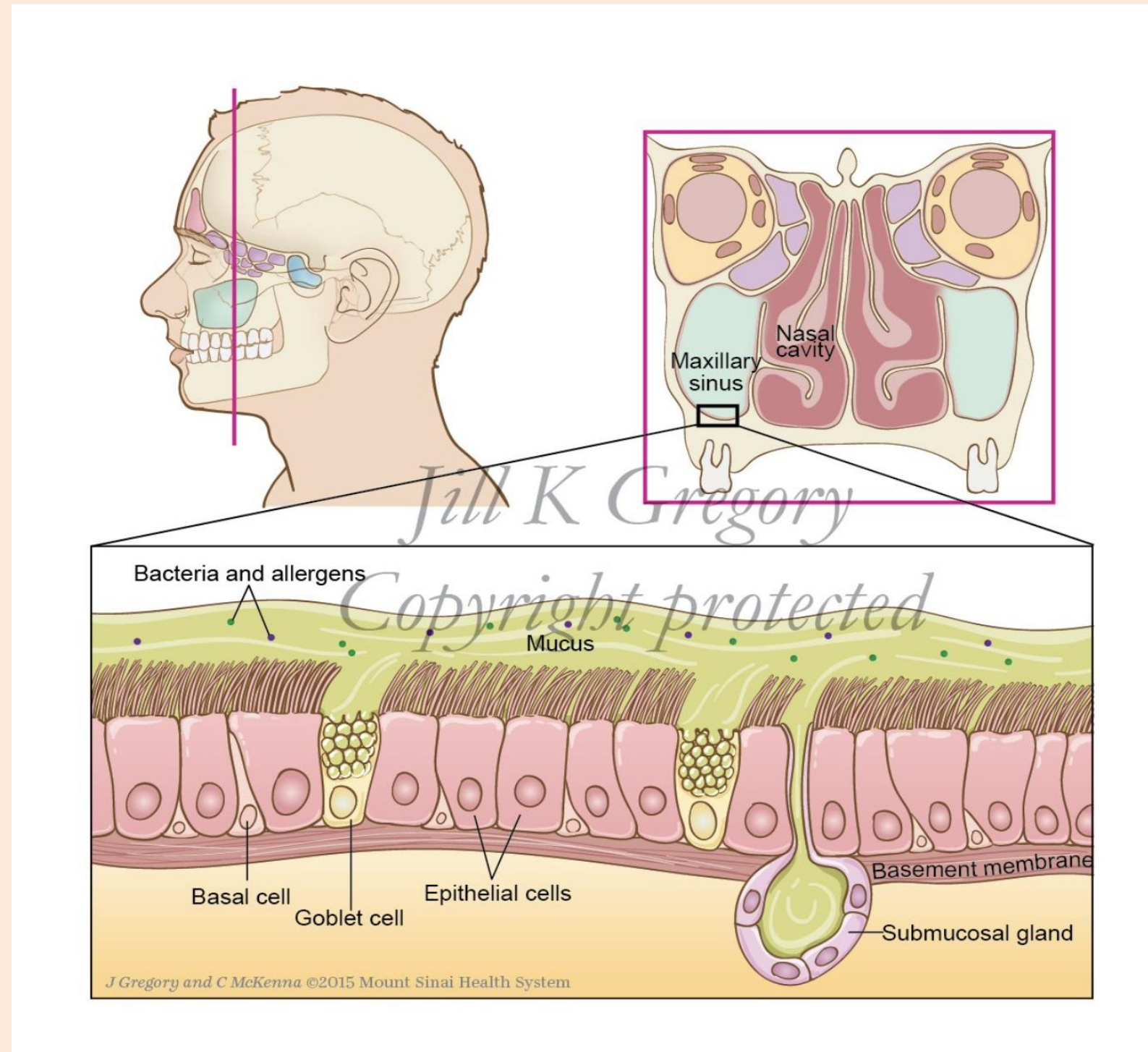
Is it important?

Dr. dr. Lia Restimulia, Sp.T.H.T.K.L

Nasal Epithelium



Nasal Epithelium



Rhinosinusitis

HOST (Genetic, physiologic, structural, defects in innate or adaptive immunity)

MICROBIAL (Bacteria, fungi, biofilms, superantigen)

ENVIRONMENT (Smoking, pollution, allergy)

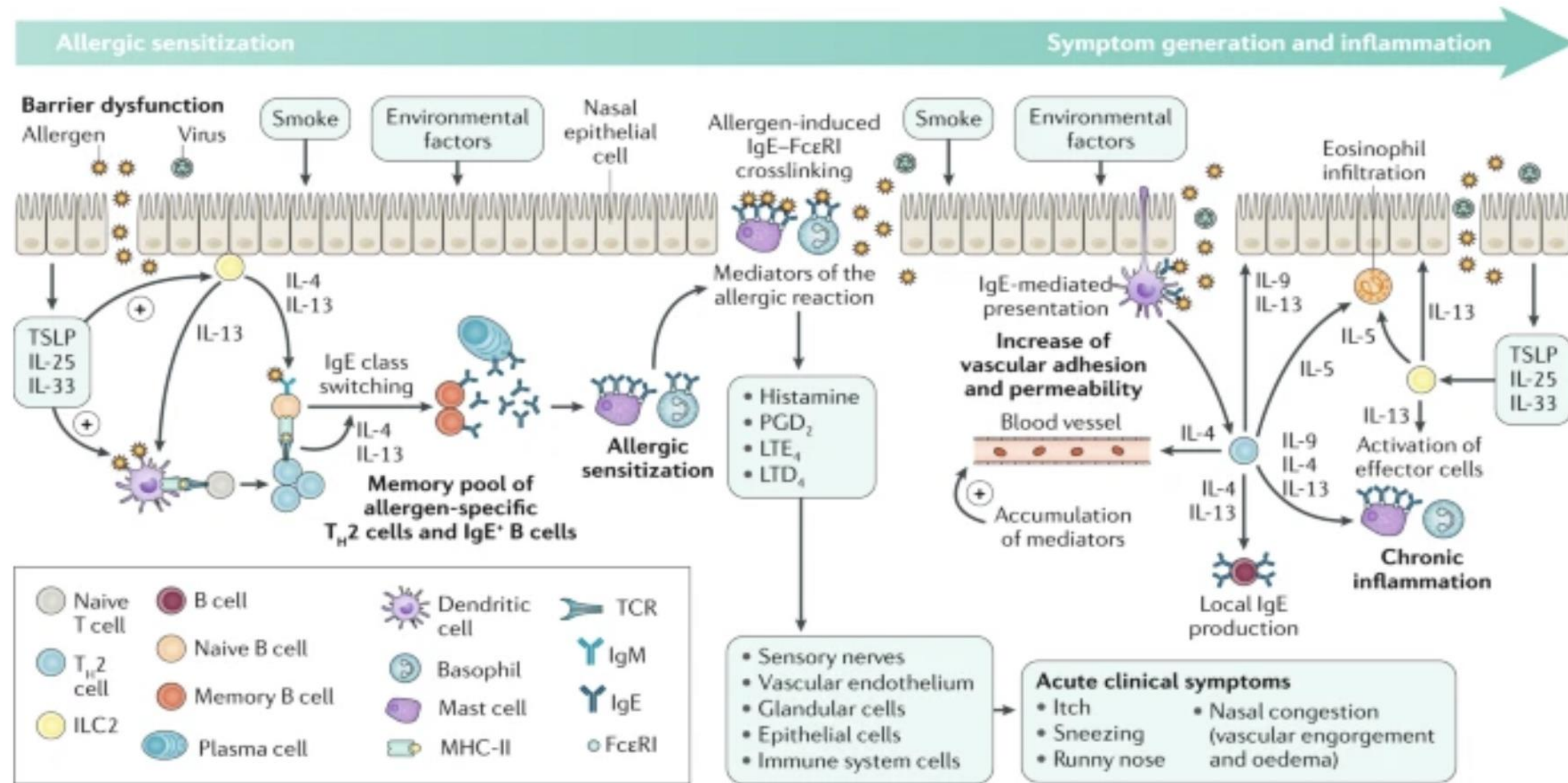
INFLAMMATION (Mucus hypersecretion, tissue damage, obstruction of nasal passage, bacterial colonization)

Mucociliary dysfunction & Mucus Stagnation





Pathophysiology of Allergic Rhinitis





NASAL IRRIGATION

More Details 



Treatment of ARS

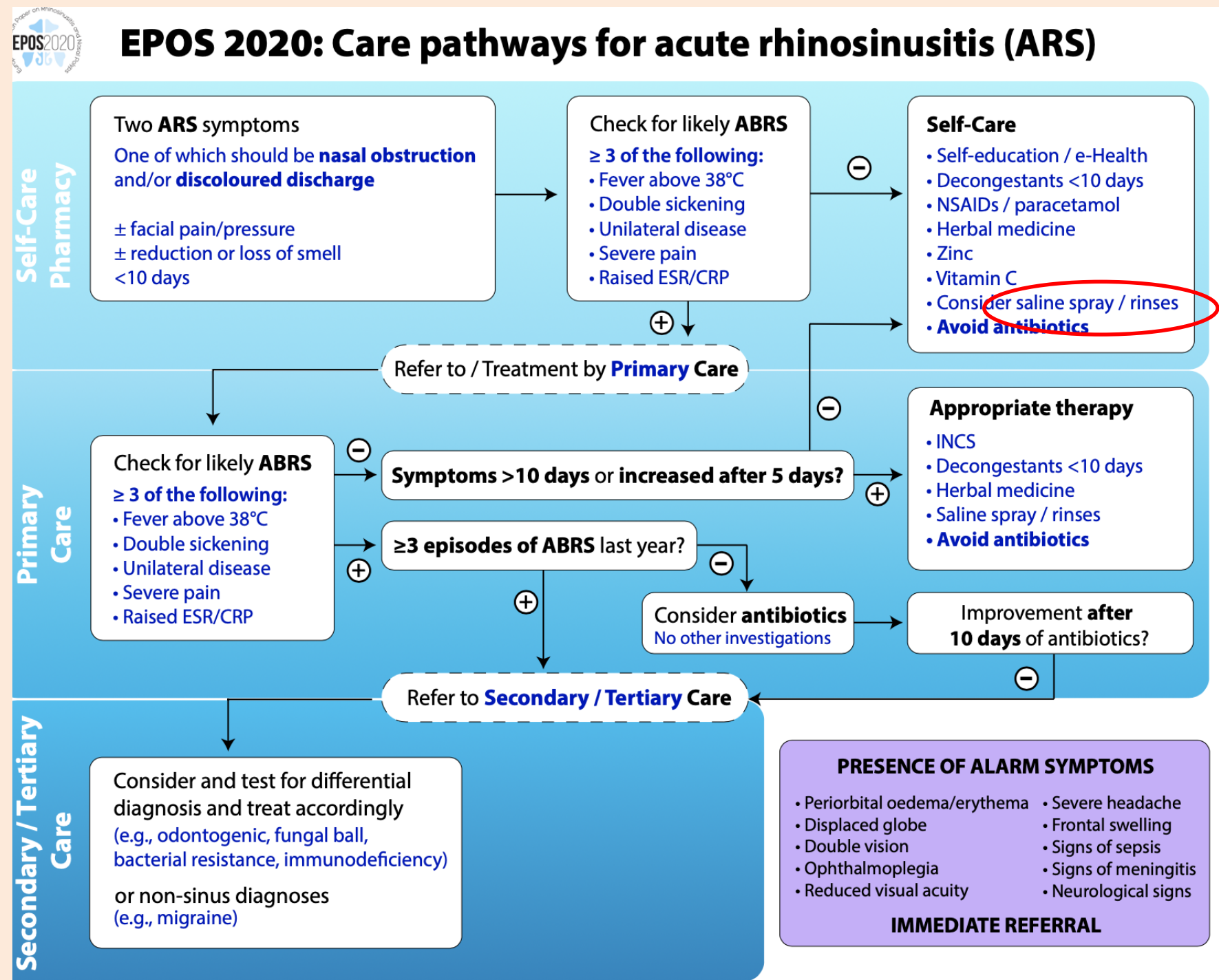


Table 1.4.2. Treatment evidence and recommendations for adults with acute post-viral rhinosinusitis.

Therapy	Level of evidence	GRADE recommendation
Antibiotics	1a (-)	There is no benefit from prescribing antibiotics for post viral ARS in adults. There is no effect on cure or duration of disease and there are more adverse events. Based on the moderate level of evidence and the fact that acute post-viral rhinosinusitis is a self-limiting disease, the EPOS2020 steering group advises against the use of antibiotics for adults in this situation.
Nasal corticosteroids	1a	Nasal corticosteroids are effective in reducing total symptom score in adults suffering from acute post-viral rhinosinusitis. However, the effect is small. Nasal corticosteroids have not been shown to have an effect on QOL. Acute post-viral rhinosinusitis is a self-limiting disease. Based on the moderate quality of the evidence and the small effect size the EPOS2020 steering group advises only to prescribe a nasal corticosteroid when reduction of the symptoms of the acute post-viral rhinosinusitis is considered necessary.
Systemic corticosteroids	1a	Systemic corticosteroids, with or without antibiotics do not have a positive effect on recovery at 7-14 days. There is a small but significant effect of systemic corticosteroids versus placebo on facial pain at days 4-7 after start of the treatment. There are no studies comparing systemic corticosteroids to nasal corticosteroids. The quality of the evidence is low. Based on the evidence, the numbers needed to treat and the potential harm of systemic corticosteroids, the EPOS2020 steering group advises against the use of systemic corticosteroids in patients suffering from acute post-viral rhinosinusitis.
Decongestant (oral / nasal)	1b	Nasal decongestants may be effective in improving mucociliary clearance throughout the acute phase of the disease. No studies have been performed evaluating the effect on resolution or reduction of symptoms of postviral ARS. Based on the absence of clinically relevant data, the EPOS2020 steering group cannot advise on the use of decongestants in acute post-viral rhinosinusitis.
Nasal irrigation with saline	1b	One small study did not find a difference between saline nasal spray versus no treatment. One very small study found a larger effect of high volume versus low volume saline rinsing on purulent rhinorrhoea and post-nasal drip. Based on the very low quality of the evidence no strong advice can be given about the use of nasal saline irrigation although on theoretical grounds saline can be expected to be beneficial rather than harmful.

Optimal Device and Regimen of Nasal Saline Treatment for Sinonasal Diseases: Systematic Review

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Summary. The effects of nasal saline treatment for ARS had mixed results. It should be considered an option for adults but recommended for children with a duration >5 days. Devices with high diffusion, regardless of volume or pressure, were favored for adult patients, while

large-volume with positive pressure devices were recommended for children. Isotonic saline is suggested for adults and children due to its low adverse event rate. Characteristics of the studies are displayed in **Table 2**.

TREATMENT OF ABRS

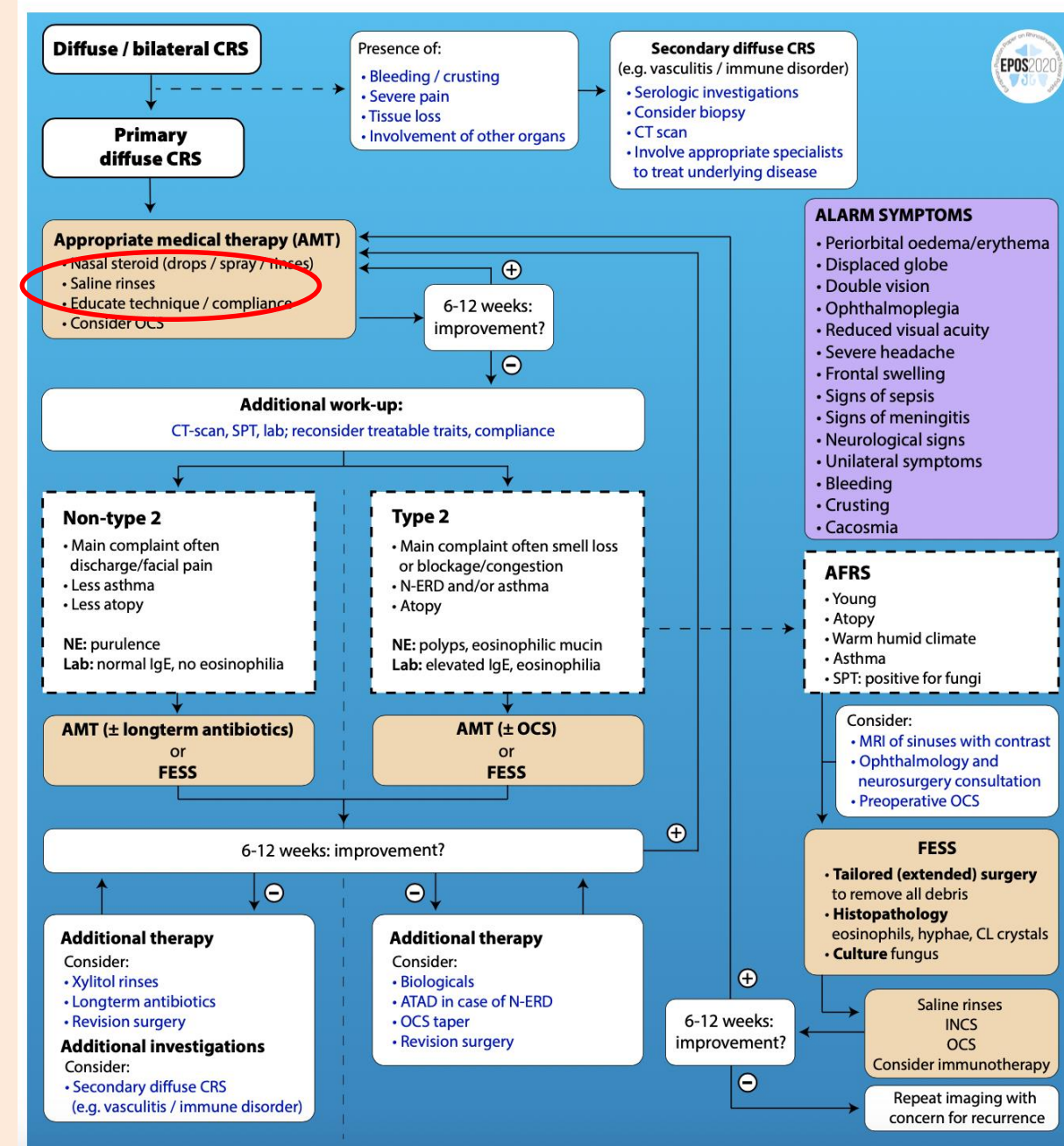
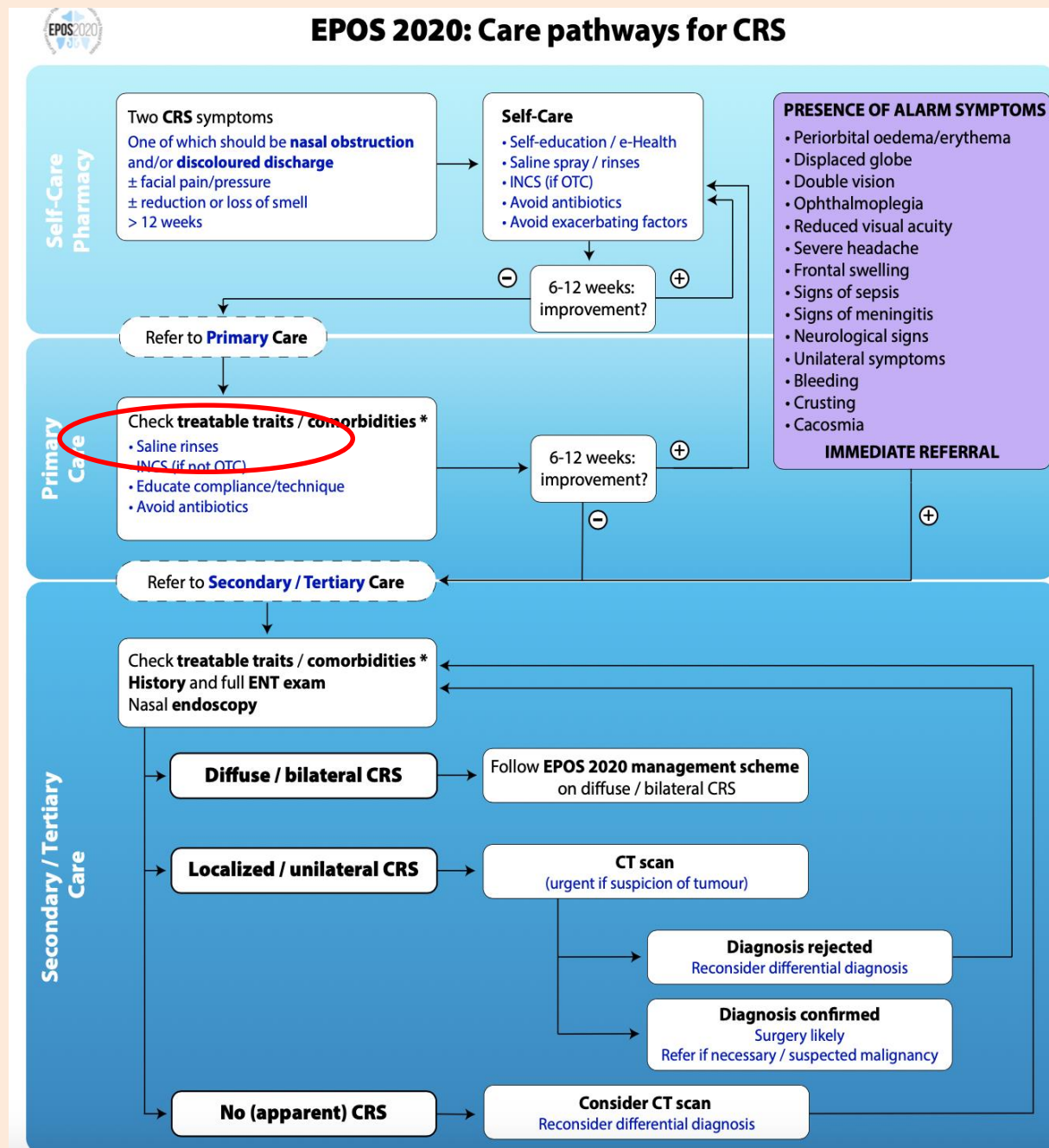


Table 1.4.4. Treatment evidence and recommendations for adults with acute bacterial rhinosinusitis (ABRS).

Therapy	Level of evidence	GRADE recommendation
Antibiotics	1a	Antibiotics are effective in a select group of patients with symptoms and signs suggestive of ABRS. From the limited data available (two studies versus one) it seems that amoxicillin/penicillin (beta-lactams) especially are effective and moxifloxacin (fluoroquinone) is not. The efficacy of beta-lactams is evident at day three where patients already experience better symptom improvement and continues with a higher number of cures at completion of treatment. However, careful patient selection for those with ABRS is needed to avoid unnecessary use of antibiotics and side effects.
Antihistamines	1b (-)	There is one study evaluating antihistamines versus placebo in adults with allergic rhinitis and ABRS showing no effect. Based on the very low quality of the evidence, the EPOS2020 steering group cannot advise on the use of antihistamines in post-viral ARS and ABRS.
Nasal irrigation with saline	1b (-)	One study comparing hypertonic saline nasal spray, isotonic saline nasal spray and no treatment in addition to antibiotics did not find a difference between the groups. Based on the very low quality of the evidence no advice can be given about the use of nasal saline irrigation.
Sodium Hyaluronate	1b	One study evaluating sodium hyaluronate compared to placebo in a nebulizer ampoule for nasal douching in addition to levofloxacin and prednisone showed significantly fewer symptoms and better smell threshold in the sodium hyaluronate group. Based on the very low quality of the evidence no advice can be given about the use of sodium hyaluronate.

ABRS, acute bacterial rhinosinusitis; ARS, acute rhinosinusitis.

TREATMENT OF CRS

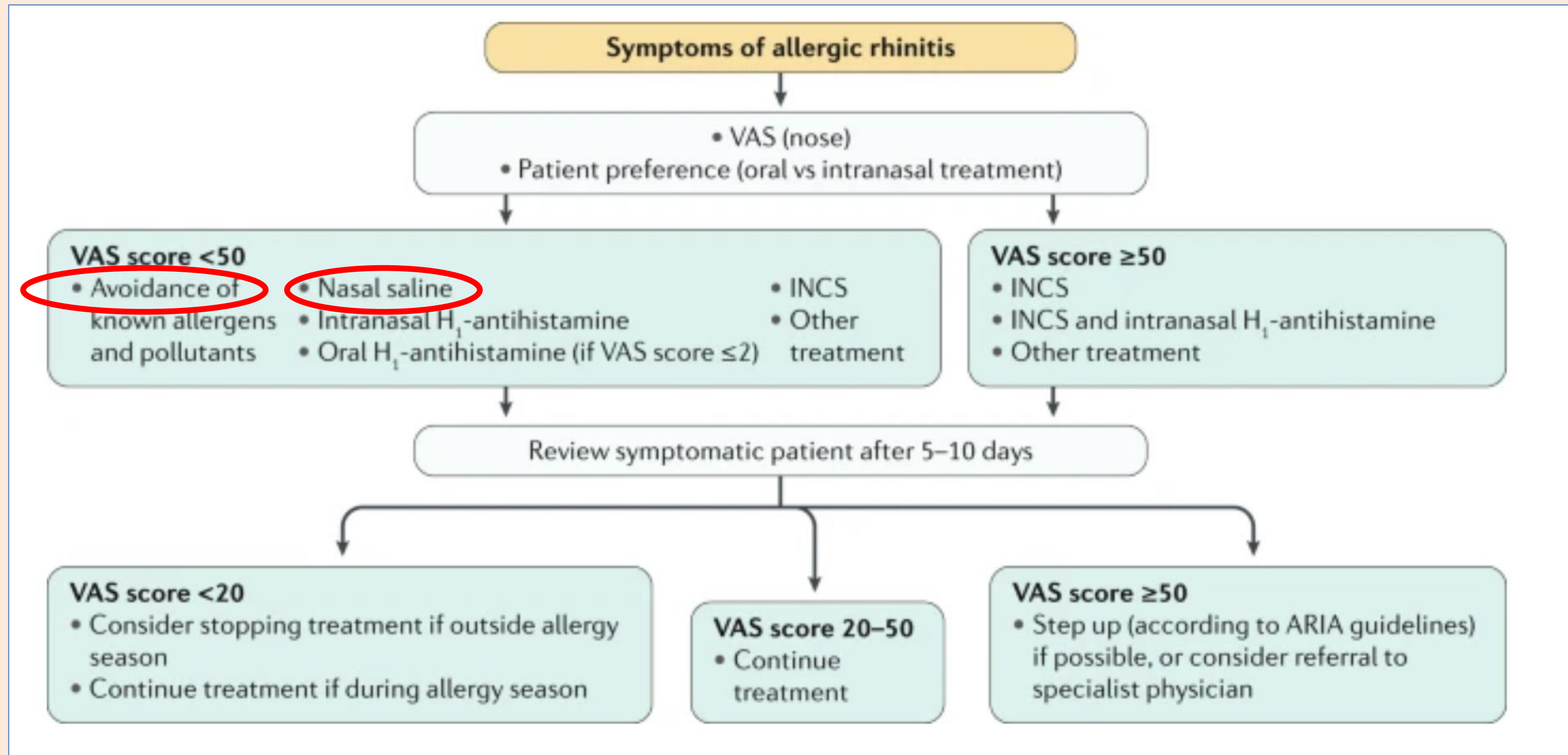


Nasal irrigation with saline

1a

There are a large number of trials evaluating the efficacy of nasal irrigation. However, the quality of the studies is not always very good which makes it difficult to give a strong recommendation. However, the data show: Nasal irrigation with isotonic saline or Ringer's lactate has efficacy in CRS patients. There is insufficient data to show that a large volume is more effective than a nasal spray. The addition of xylitol, sodium hyaluronate, and xyloglucan to nasal saline irrigation may have a positive effect. The addition of baby shampoo, honey, or dexpanthenol as well as higher temperature and higher salt concentration do not confer additional benefit. The steering group advises the use of nasal saline irrigation with isotonic saline or Ringer's lactate with or without the addition of xylitol, sodium hyaluronate, and/or xyloglucan and advises against the use of baby shampoo and hypertonic saline solutions due to side effects.

Treatment of AR



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Allergic Rhinitis. Of the 23 studies that assessed the effects of nasal saline treatment in patients with AR, 19 were RCTs and 4 were meta-analyses. Eleven RCTs assessed adult AR,⁴⁻¹⁴ and 8 RCTs assessed pediatric AR.¹⁵⁻²² Three meta-analyses pooled the data from adult and pediatric AR,^{1,3,23} and 1 meta-analysis examined data only from children.²⁴

In adult AR, 4 RCTs compared the effects of saline treatment with no-saline treatment.^{6,7,10,13} Duration of treatment ranged from 2 to 6 weeks. Three studies favored the saline treatment in symptom reduction.^{6,7,10} The benefits were demonstrated after 2 to 3 weeks and continued until 4 to 6 weeks. Patients in the saline treatment group used fewer antihistamines.^{7,10,12} The meta-analyses showed that saline treatment was superior in symptom improvements.^{3,23} Adverse effects were not different from control.

In pediatric AR, 6 RCTs compared the effects of saline treatment with no-saline treatment.^{15,17,19-22} All RCTs reported benefits of nasal saline treatment over control. Decreases in symptom score and antihistamine usage favored the nasal saline treatment at 4 weeks.¹⁹ The addition of saline spray to nasal steroid showed beneficial effects, such as reduced dosage of intranasal steroid spray, at 8 to 12 weeks.^{17,22} In children with asthma, quality of life (QoL) improvement was shown at 12 weeks.¹⁵ The meta-analyses showed decreases in symptoms^{3,23} and antihistamine usage.²⁴ However, the disease-specific health-related QoL was not affected.³ Temporary otalgia and epistaxis were noted.¹⁵

Devices. In adult patients, 1 RCT showed that nasal saline treatment with a squeeze bottle (240 mL) was better than a syringe (20 mL) in reducing symptoms.¹² There were no adverse effects in either device.¹² Spray was effective when compared with baseline.^{9,10} Yet, there were no comparisons between spray and other devices.

No study directly compared the effects among different devices in children. Many devices (spray, atomizer device, or large-volume syringe) provided beneficial effects. Minor adverse events, such as otalgia, ear fullness, and epistaxis, occurred in 30% of the patients who used a large-volume device¹⁵ but none in very low and low-volume devices.^{17,19-21}

In pediatric AR, 3 RCTs compared the effects between hypertonic and isotonic saline.^{16,18,19} The meta-analysis, which included these RCTs, favored the hypertonic saline over the isotonic saline. The antihistamine usage was not different between the tonicities. Adverse effects were reported without statistical differences.²⁴

Summary. Nasal saline treatment decreased symptoms of AR. The duration of treatment was at least 2 weeks in adult patients and 4 weeks in pediatric patients. There was a slight chance of local nasal irritation in pediatric patients. A large-volume device (≥ 60 mL) was more effective and recommended in adult patients, while a very low- to low-volume device (< 60 mL) was recommended in children. Hypertonic saline treatment was more effective in adults and children with AR. However, adverse events were reported in a small number of patients. Therefore, isotonic saline should be used first. Buffered and nonbuffered saline can be used in adults and children. A summary of the studies in AR is shown in **Table 1**.



International consensus statement on allergy and rhinology: Allergic rhinitis – 2023

Intranasal saline

Aggregate grade of evidence: A (Level 1: 4 studies, level 2: 17 studies)

Benefit: Improved nasal symptoms and QOL, reduction in oral antihistamine use, and improved mucociliary clearance. Well-tolerated with excellent safety profile.

Harm: Nasal irritation, sneezing, cough, and ear fullness. See Table II.C. in full ICAR document.

Cost: Minimal.

Benefits-harm assessment: Preponderance of benefit over harm.

Value judgments: Nasal saline can and should be used as a first line treatment in patients with AR, either alone or combined with other pharmacologic treatments as evidence supports an additive effect. Hypertonic saline may be more effective in children. Data is otherwise inconclusive on optimal salinity, buffering, and frequency and volume of administration.

Policy level: Strong recommendation.

Intervention: Nasal saline is strongly recommended as part of the treatment strategy for AR.

Adult population. All studies found improvements in clinical outcomes with the utilization of nasal saline, with formulas varying in salinity, buffering, and frequency, volume, and mode of administration. Studies also varied in the types of AR evaluated.^{2089–2097} Compared to no intranasal treatment, hypertonic saline was found to significantly improve outcomes, including nasal symptoms, QOL, and oral antihistamine use.^{2090,2092,2094} Ural et al.²⁰⁹¹ further compared hypertonic and isotonic saline irrigations, finding improved mucociliary clearance with the isotonic solution only. Looking at subjective outcomes with hypertonic versus isotonic solutions, however, Cordray et al.²⁰⁸⁹ and Sansila et al.²⁰⁹⁵ found QOL and symptom score were better with hypertonic solutions. Finally, Yata et al.²⁰⁹⁷ evaluated both subjective and objective outcomes and found no difference between hypertonic and isotonic saline irrigations. Focusing on isotonic saline with various degrees of buffering, Chusakul et al.²⁰⁹³ found that after 10 days buffered isotonic saline with mild alkalinity had the greatest impact on reducing nasal symptom scores and was preferred by most patients. Both Cordray et al.²⁰⁸⁹ and Lin et al.²⁰⁹⁶ found INCS had similar effi-



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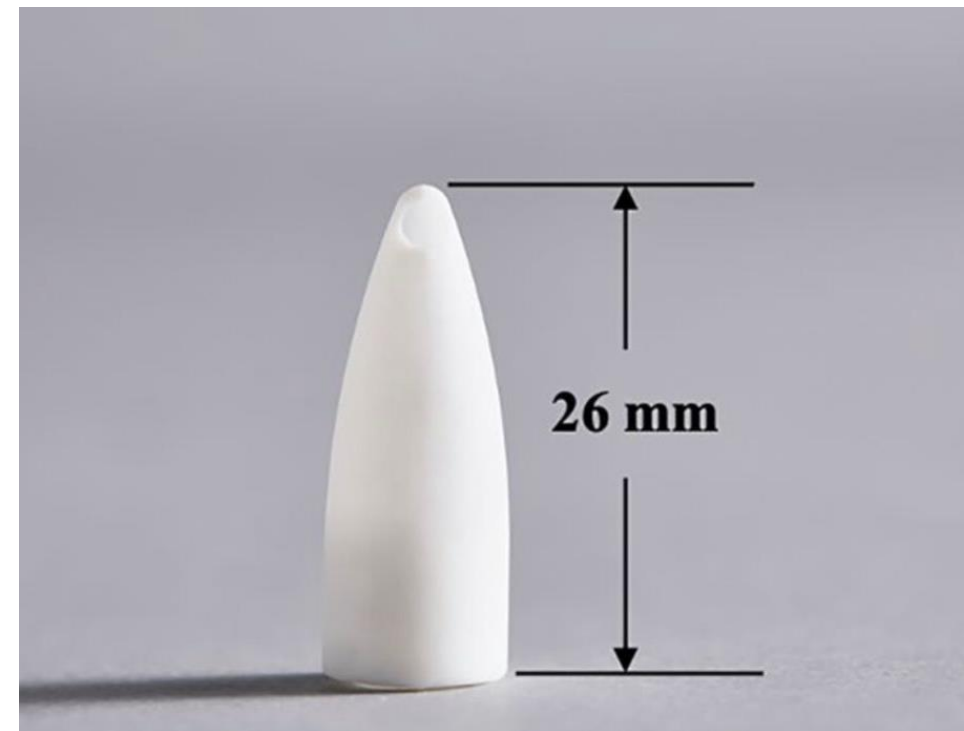
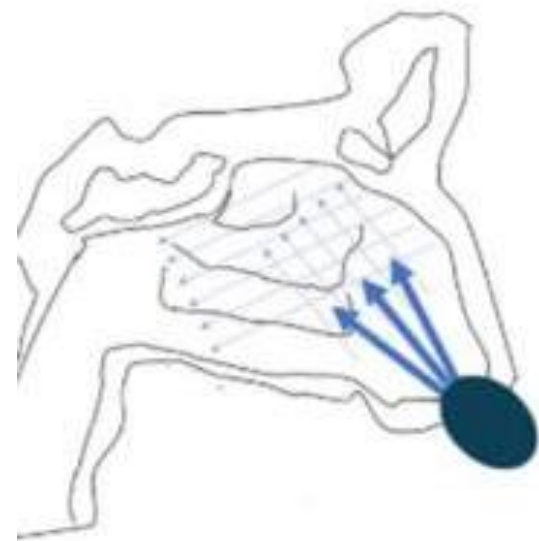
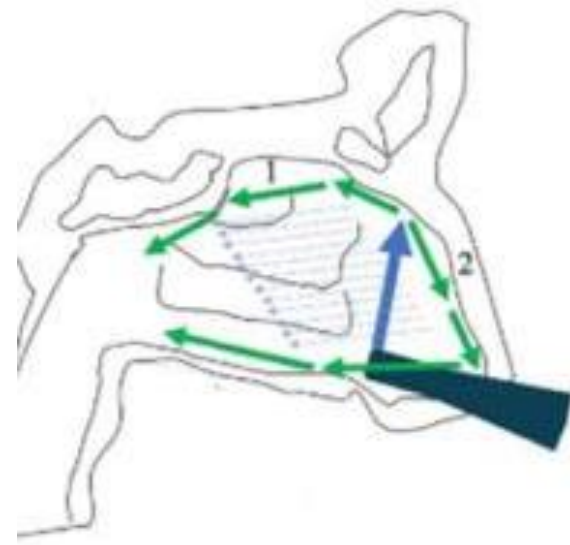

Summary. The benefits at a short postoperative period were not demonstrated. Saline treatment is recommended when the duration of treatment is >3 weeks and up to 3 months after ESS. A large-volume device is preferred. Hypertonic and isotonic saline showed benefits on subjective and objective outcomes. Due to the potential of increasing pain and irritations caused by hypertonic saline, isotonic saline is recommended for the postoperative period after ESS. Buffered and nonbuffered saline can be used. Characteristics of the studies are displayed in **Table 5.**



Nasal Irrigation Devices



Nasal Irrigation New Device



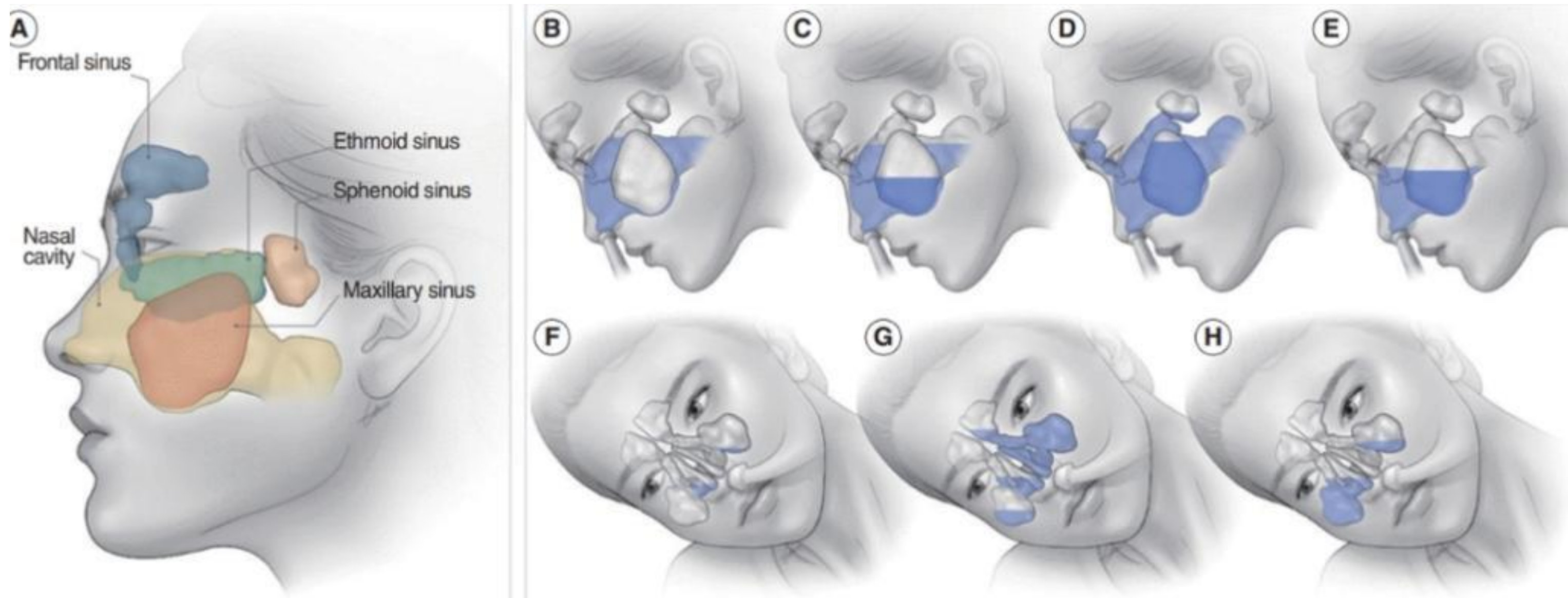
Guideline

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Clinical Practice Guideline: Nasal Irrigation for Chronic Rhinosinusitis in Adults

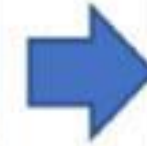
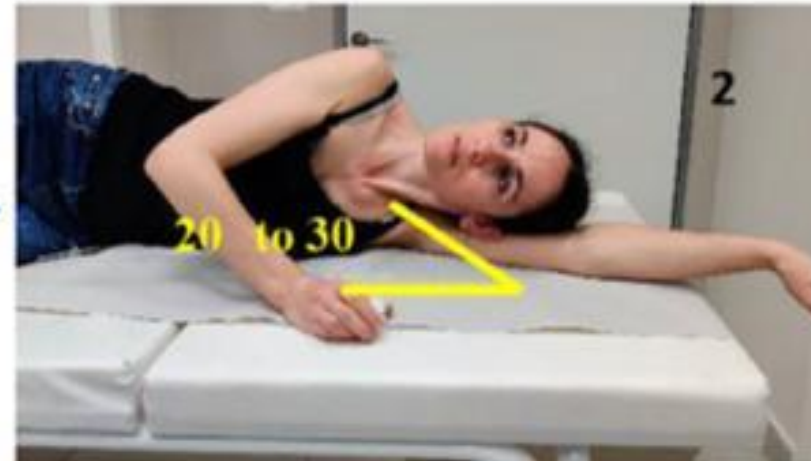
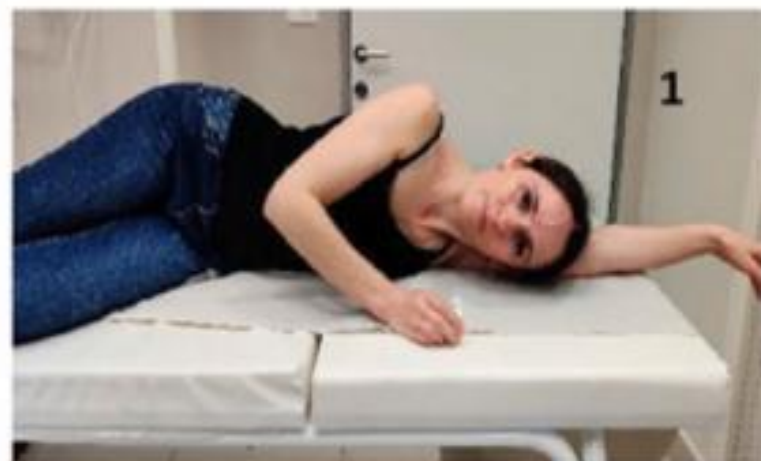


Distribution Pattern of Fluid

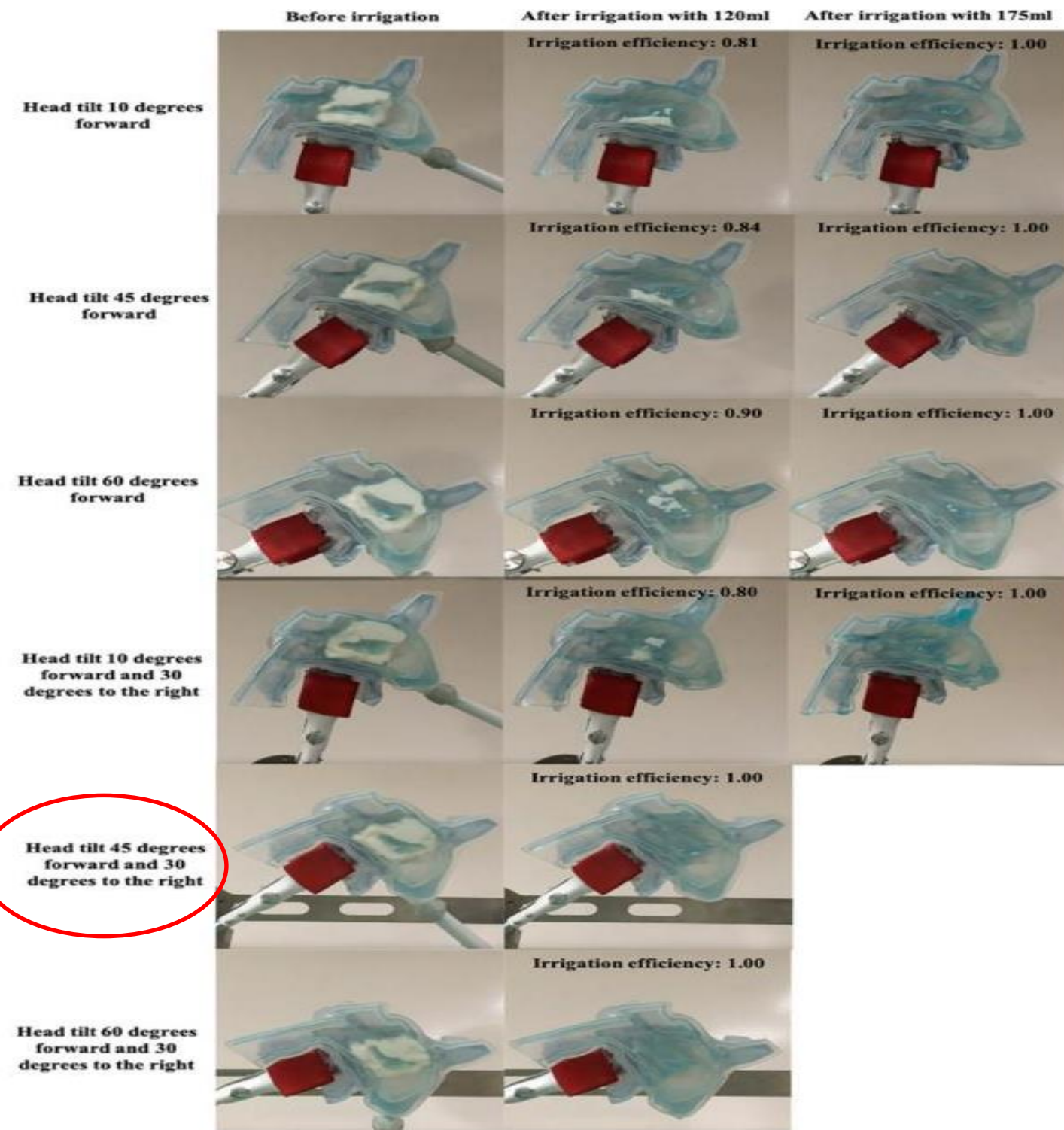
(A)



(B)



Distribution Pattern of Fluid Flow

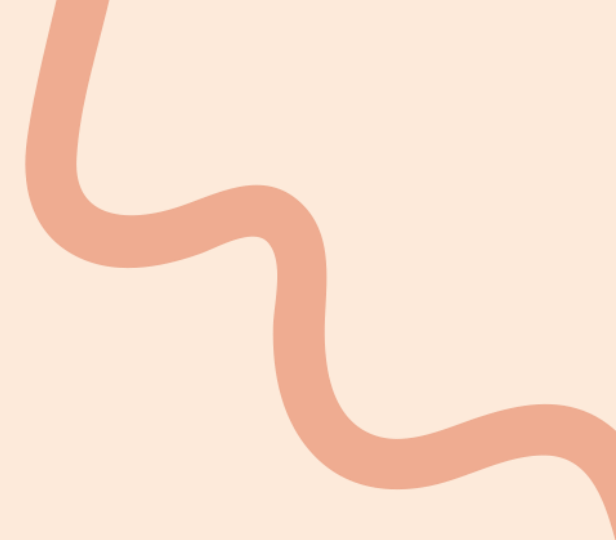




Take Home Messages

- ✓ Nasal irrigation is recommended for nasal hygiene, and still the main therapy in allergic rhinitis, rhinosinusitis
- ✓ Proposed biological rationale & benefit:
 - ✓ Decreased mucus viscosity
 - ✓ Increase the mucus clearance
 - ✓ Decrease the inflammation and edema
 - ✓ Improve the nasal symptoms & quality of life
- ✓ Squeeze bottle is superior than syringe, and superior than nasal spray
- ✓ Recommended amount of nasal saline in adult is more than 60mL while children below 60 mL with position head tilt 45 degrees forward and 35 degrees to the contralateral side





THANK YOU

