



Nasal Medications

Notes on using antibiotics for nasal disease

- There is no real place for topical antibiotics in the nose
- Oral antibiotics may be used for treating acute sinusitis
- However, only approximately 2% of cases are bacterial, and 80% of cases will resolve in 14 days without intervention.
- If antibiotics are needed, use for 7 days
- Low dose macrolides are often used in chronic rhinosinusitis (as a 3-month trial).

Name	Active against	Common side effects	Pregnancy	Lactation
Amoxicillin	S pneumonia, H influenzae	D&V, rash	Safe	Safe
Clarithromycin / Erythromycin	S pneumonia, H influenzae	D&V, rash, abdo pain, Cytochrome P3 inhibitor	First choice antibiotic in pregnancy	Ideally don't use
Doxycycline	S pneumonia, H influenzae	Visual disturbance, headache, abdominal pain	Contraindicated	Contraindicated
Co-amoxiclav	Moraxella catarrhalis	D&V, rash	Avoid	Safe

Nasal sprays

Absorption:

Through mucosal membrane - high surface area and very well perfused. Posterior nasal passages and sinuses harder to reach.

Distribution:

Local action required but maybe distributed into circulation directly or by ciliated cells transporting mucous which takes drug particles with it. Can lead to systemic effect – side effects

Metabolism:

Some drug metabolising enzymes exist in the nasal cavity. Once in general circulation, they will be subject to first-pass metabolism.

Clearance:

Cleared out with mucous. Slower for drugs administered by spray rather than by drops, as drops are often held on ciliated surfaces. More cilia are present on posterior and middle cavities, so clearance quicker from here.

Excretion following metabolism if in systemic circulation.

Nasal drops Vs Sprays

- Nasal drops: theoretically less likely to cause systemic side effects as larger droplets that run off the surface, so less contact time for absorption. More difficult to measure accurate dose.
- Nasal spray: pump mechanism for accurate measured dose. Better mucosal distribution and slower clearance from drug spray generated

Nasal Steroids

- Administered as a spray or drops
- Bind to glucocorticoid receptors and exert an anti-inflammatory effect.
 - decrease activation of macrophages and T cells increase synthesis of annexin-1
 - inhibit release of inflammatory mediators such as histamine, prostaglandins, leukotrienes and cytokines
- Reduce swelling, oedema and cause vasoconstriction
- 2nd generation steroids (mometasone, fluticasone) are more lipophilic so greater deposition (30%) in respiratory tract tissue. 70% is absorbed systemically and rapidly passes through first pass metabolism.
- Betamethasone (1st generation steroid) administered as drops and has most systemic bioavailability and highest probability of systemic side effects.
- Similar response and effectiveness of all steroids via nasal route

Drug	Form	Age	Pregnancy	Lactation
Beclomethasone	1 puff BD	> 6 years	Caution	Caution
Betamethasone	2 drops BD	> 6 years	Caution	Caution
Budesonide	1 puff BD	> 6 years	Caution	Caution
Mometasone	1 puff BD	> 6 years	Caution	Caution
Fluticasone fuorate	1 puff BD	> 6 years	Caution	Caution
Fluticasone propionate	1 puff OD	> 4 years	Caution	Caution
Triamcinolone	1 puff OD	> 2 years	Caution	Caution

Side effects

- Nasal dryness, epistaxis, irritation in nose & mouth
- Unpleasant taste/smell
- Caution in glaucoma - theoretic risk of raised intraocular pressure, headache. Seek advice of ophthalmology

* pregnancy: risk of systemic effects increase with prolonged use. Use for a short a time as necessary

* children: monitor growth with prolonged use due to increased risk of systemic absorption

Nasal –Decongestants

- Administered as drops or a spray – fast acting, low systemic absorption
- Sympathomimetic, therefore, act on alpha receptors of smooth muscle and cause vasoconstriction of blood vessels. Reduce oedema of nasal mucosa, more efficient airflow.
- The main problem is rebound congestion due to secondary vasodilation with an increase in nasal congestion (Rhinitis Medicamentosa), so restricted to 7 days use
- Can also damage cilia and affect clearance of mucus
- Some systemic absorption possible – caution when using in patients with heart disease/hypertension/hyperthyroidism/narrow-angle glaucoma

Drug	Form	Age	Pregnancy	Lactation
Xylometazoline	1 puff TID	> 6 years	Avoid	No
Ephedrine drops	1 puff QID	> 12 years	Avoid	No

Application of nasal sprays

Whichever nasal spray is chosen as a treatment there are two cardinal rules for successful usage:

1. Always look at your toes when you spray your nose
2. Never miss a dosage

The diagram bellows shows the head posture required.

Look at your toes
when you spray your nose.

