

# Colds, flu and coughing: a review of over-the-counter nasal therapies in general practice

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## Abstract

Nasal congestion due to the common cold occurs because of dilation of the blood vessels, leading to swelling of the nasal mucosal epithelium. This narrows nasal passages, which are further blocked by increased mucus production. Nasal sprays and drops are often recommended for the treatment of rhinorrhoea and nasal congestion associated with the common cold. This brief review discusses over-the-counter nasal therapies that are used to relieve rhinorrhoea and nasal congestion in adults and children.

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## Introduction

Most patients with a common cold experience rhinorrhoea.<sup>1</sup> Initially, this is a clear watery fluid which is then usually followed by the production of thicker and more tenacious mucus, which may be purulent. Importantly, clear nasal secretions frequently become thicker and purulent without signifying bacterial infection<sup>2</sup> during the symptomatic progression of rhinorrhoea associated with the common cold.

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## Delivery of topical nasal medication

Nasal sprays and drops are often recommended for the treatment of rhinorrhoea and nasal congestion. Despite easy access, the anatomy of the nose makes the reliable and efficient delivery of drugs to the mucosal surfaces challenging. This is partly because the nasal valve is the narrowest segment of the respiratory tract, accounting for up to 80% of nasal resistance and almost half of total airways resistance.<sup>3</sup>

Effective drug delivery via the nose requires particles to be delivered beyond the nasal valve to the mucosal surfaces which are lined by columnar epithelium to provide a mucosal surface that is more suitable for drug absorption.<sup>4</sup> Other factors that influence nasal drug delivery include the administration devices that are used, sniffing, head position and inter-individual and intra-individual variability.<sup>5</sup> Sniffing

during actuation of the nasally administered medication causes additional narrowing of the elastic tissues of the nasal valve and results in a large part of the dose being lost to the mouth and swallowed.<sup>4</sup>

The ideal nasal delivery system should allow a large proportion of the drug to penetrate the nasal valve, should effect significant drug delivery to the middle meatus and minimal delivery to the pharynx and lower respiratory tract and should be consistent, as well as user-friendly.<sup>5</sup> Several studies have shown that while nasal delivery devices allow deposition into the anterior aspect of the nose, delivery to the posterior aspect is poor.<sup>6</sup>

Despite the limitations of currently available nasal delivery devices, topical aqueous nasal sprays and drops are effective and are widely used in the management of various nasal disorders.<sup>6</sup>

## Nasal sprays or drops?

Nasal sprays are preferred for adults and children over six years of age because the small droplets in the spray mist reach a larger surface area than those of a nasal drop. However, nasal drops are preferred in children under six years of age because the nostrils in young children are not sufficiently wide to allow the effective use of medicated nasal sprays. Paediatric versions of nasal drops should be used where appropriate.<sup>1</sup>

## Intranasal therapies

Nasal congestion and rhinorrhoea in adults and older children may be managed with the intranasal administration

of various over-the-counter (OTC) medications. However, it is recommended that symptoms in children who are younger than six years of age should be managed using nasal suction, saline nasal preparations, adequate hydration and the use of a cool mist humidifier, rather than OTC intranasal or oral medicines.<sup>1,7</sup>

### Intranasal saline

Nasal irrigation (sprays or washes) with saline may be beneficial in removing thick mucus secretions from the nose.<sup>8</sup> The use of a saline nose spray or drop is preferred<sup>7</sup> in younger children, while nasal washes may be more effective in older children and adults.<sup>9</sup> Nasal lavage, with at least 200 ml warmed saline for each nostril, can be performed as needed, daily or multiple times daily, depending on the severity of the symptoms. Saline washes can also be used immediately prior to administration of other intranasal medications so that the mucosa is freshly cleansed when the medications are administered.<sup>9</sup> A variety of OTC devices are available to administer the saline, including squeeze bottles and syringes. Patients can make their own normal saline solutions or buy commercially prepared products.

### Topical decongestants

Sympathomimetics, e.g. oxymetazoline, phenylephrine and xylometazoline, are effective in reducing nasal congestion. They work by constricting the dilated blood vessels in the nasal mucosa so that drainage of mucus and circulation of air are improved and the feeling of nasal stuffiness is relieved.<sup>1</sup> The decongestant effects of topical products containing oxymetazoline or xylometazoline are longer lasting (up to six hours) when compared with those of other decongestants, such as ephedrine.<sup>1</sup>

However, the use of nasal decongestants should be restricted to short-term use, only since secondary vasodilation gives rise to rebound congestion (rhinitis medicamentosa) after as few as five days' exposure.<sup>8</sup> The use of a topical decongestant should be restricted to relief of the blocked nose and should not be used regularly for longer than two to three days when treating acute viral rhinitis.<sup>8</sup>

Some topical decongestants also contain an antihistamine, e.g. dimethindene maleate, e.g. Vibrocil-S®. The anticho-

linergic effect of the antihistamine may help reduce rhinorrhoea associated with the common cold, but is not as effective at reducing nasal congestion.<sup>1</sup>

### Mesna, e.g. Mistabron®

Mesna or sodium 2-mercaptoethanesulphonate is a mucolytic agent that may be used to relieve rhinitis and nasal obstruction due to thick secretions.<sup>8</sup> It acts in a manner similar to cysteine and breaks the disulphide links of the macromolecules that are responsible for the viscosity of mucus, thereby liquefying the mucus.<sup>8,10</sup>

### In summary

Despite the several factors that limit nasal delivery of medications, topical nasal therapies appear to be beneficial in removing thick mucus secretions from the nose and in providing short-term relief of rhinorrhoea and nasal congestion associated with the common cold. New nasal delivery devices may improve the therapeutic effects of intranasal drug administration.

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