

## Q: How long can my patient use intranasal steroid sprays?

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**A:** Intranasal steroid sprays are safe for long-term use, and there is little evidence to indicate they cause significant systemic side effects. However, patients with chronic rhinitis who might use them for long periods should be advised to use them only intermittently and at the lowest dose that controls their symptoms.

Patients who regularly use steroid sprays should undergo examination of the nasal cavity at least annually to check for damage to the septum.

Children using intranasal steroid sprays should be prescribed the newer-generation formulations, use low doses, and have their growth monitored regularly.

### ■ NASAL STEROIDS ARE WIDELY USED

In 1972, beclomethasone dipropionate was marketed as the first intranasal spray for allergic rhinitis. Its efficacy in the treatment of seasonal, perennial allergic rhinitis and nonallergic rhinitis led to the development of additional formulations and second-generation steroid sprays (TABLE 1).<sup>1</sup>

Several consensus reports list intranasal steroid sprays as first-line therapy for rhinitis.<sup>2-4</sup> These drugs are widely used: an estimated 25% of the US population has allergic rhinitis, and sales of intranasal steroid sprays exceeded \$1.6 billion in 2000.<sup>5</sup>

The usual prescribed dose is one or two squirts in each nostril daily. Some patients are disappointed that there is no immediate decongestant effect—optimal clinical

efficacy may not be reached for 1 to 2 weeks.

Some patients with chronic allergic and nonallergic rhinitis use intranasal steroid sprays for years. In view of this, studies have been done to determine if these drugs can be taken intermittently on an as-needed basis instead of daily, to reduce exposure to them. Although the studies were short-term (4–6 weeks), dipropionate and fluticasone have shown benefit when used intermittently.<sup>6,7</sup>

### ■ LOCAL SIDE EFFECTS

Patients may notice local side effects, including burning, dryness, crusting, and occasional nosebleeds.

Septal perforations are rarely reported and may be related to vasoconstrictive activity of corticosteroids. Perforations are most likely to occur in the first year of use and in young women.<sup>8</sup> To help avoid local side effects, patients should be instructed to spray away from the septum.

Mucosal atrophy, as evaluated by nasal biopsy, has not been observed with 1 year of use of either fluticasone or mometasone, or 5.5 years of budesonide.<sup>9-11</sup>

A few cases of allergic contact dermatitis have been reported, particularly with budesonide; patients with known contact hypersensitivity reactions to specific steroids should be careful using sprays.<sup>12,13</sup>

### ■ SYSTEMIC SIDE EFFECTS

The long-term use of intranasal corticosteroid sprays raises concerns about their possible systemic side effects. Systemic absorption occurs (TABLE 1), but few clinically relevant side effects are known.<sup>14,15</sup>

**There is little evidence to indicate significant systemic side effects**

TABLE 1

## Intranasal corticosteroid preparations

STEROID PREPARATION	AGE INDICATED (YEARS)	SYSTEMIC BIOAVAILABILITY (%)	AVERAGE WHOLESAL PRICE*
<b>First-generation formulations</b>			
Beclomethasone dipropionate (Beconase AQ)	> 6	17	\$77.56 (25-g inhaler)
Flunisolide (Nasarel)	> 6	20–50	\$69.73 (25-mL bottle)
Triamcinolone acetonide (Nasacort AQ)	> age 6	22	\$75.85 (16.5-g inhaler)
<b>Second-generation formulations</b>			
Budesonide (Rhinocort Aqua)	> 6	11	\$76.13 (8.6-g bottle)
Fluticasone propionate (Flonase)	> 4	< 2	\$70.87 (16-g bottle)
Mometasone furoate (Nasonex)	> 2	< 0.1	\$74.47 (17-g inhaler)

\*Prices from Red Book 2005

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**Patients should use the lowest dose that controls their symptoms**

Two preparations, dexamethasone and betamethasone, have some effect on the hypothalamic-pituitary-adrenal axis. They are not currently used in the United States.


Triamcinolone acetonide, budesonide, fluticasone propionate, and mometasone tend not to cause any significant side effects, presumably because they have lower systemic bioavailability (particularly fluticasone and mometasone) and are used in low dosages.

The labels of intranasal sprays warn of potential effects on children's growth. Beclomethasone dipropionate spray used for 1 year affected children's growth,<sup>16</sup> but neither fluticasone nor mometasone had this effect.<sup>17,18</sup> Fluticasone and mometasone are approved for young children by the US Food and Drug Administration.

Occasional case reports link glaucoma with intranasal steroid sprays. However, two large studies of patients using intranasal sprays

found no association with glaucoma or cataracts: one was a case-control study of more than 9,000 patients,<sup>19</sup> and the other was a retrospective observational study of more than 286,000 patients.<sup>20</sup>

Other side effects typical of parenteral use of corticosteroids, such as osteoporosis, diabetes, and hypertension, have not been reported with any of the current sprays. However, no studies have specifically addressed these issues, and most studies on sprays are conducted for less than 1 year.

It is possible that other side effects may occur if patients use higher doses than prescribed. Other issues that need further study include the long-term use of intranasal sprays with other forms of topical corticosteroids (such as inhaled preparations for asthma), as well as with parenteral forms of corticosteroids to control inflammatory diseases such as asthma, inflammatory bowel disease, or rheumatoid arthritis. 



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