

## The NasoNeb® Nasal Nebulizer: Optimized Intranasal Drug Delivery for Your Patients

The NasoNeb® Nasal Nebulizer delivers a deep, penetrating aerosol to the nasal and paranasal sinus cavities with virtually no incidental pulmonary delivery of drugs that is common with small particle nebulizers.

A **large particle** size ensures that the delivered medication stays in the nasal and paranasal sinus cavities while a **penetrating airstream** ensures that the particles are propelled throughout the nasal cavity.

The NasoNeb has been shown to deliver the aerosol to the *frontal recess/sinus, sphenoid recess, ethmoid cavity, sphenoid and maxillary sinuses, all turbinates, the middle meatus and olfactory cleft*<sup>2,5</sup>.

**Table 1. Percentage of NasoNeb-generated particles by size, in microns**

Particle Size	NasoNeb System
<5 µm	0.0083±0.0098%
<10 µm	0.055±0.037%
>10 µm	99.94%±0.037%

Small particle nebulizers deliver a substantial fraction of the drug to the pulmonary system. This can increase systemic bioavailability of the drug<sup>10</sup>. Additional unwanted side effects may include alteration of voice<sup>8</sup>, antimicrobial resistance<sup>7</sup>, eosinophilic pneumonia<sup>8</sup>, chronic cough<sup>8</sup>, and reduced lung function<sup>6</sup>. Studies have shown that only 3% of the drug reaches the intended nasal and paranasal sinus cavities when delivered by these devices<sup>4</sup>.

Spray bottles, while delivering large particles in the size range of 37 – 157 µm, do not support the particles with any airstream and the majority of the particles are deposited in the antrum of the nose<sup>1</sup>.

Off-label use of irrigation bottles may distribute the drug across a broader cross-section of mucosa, but only leave between 1.8 and 2.4% of the drug in the nasal cavity, with the rest running down the sink<sup>3,4</sup>.

The NasoNeb Nasal Nebulizer has the right particle size and the right air flow to make it the only non-compromising intranasal drug delivery system available.

Insist that your patients receive the best topical drug delivery system today, specifically designed for delivery of drugs to the nasal and paranasal sinuses. Insist on the NasoNeb Nasal Nebulizer by name.

**Table 2. Comparing Intranasal Drug Delivery Systems**

Intranasal Drug Delivery Options	Particle size	Supporting air flow	Intranasal deposition	Intranasal drug retention	Pulmonary deposition
NasoNeb Nasal Nebulizer	23.3 µm	Yes	Broad <sup>2,5</sup>	High	No
Small particle Nebulizers	3-5 µm	No	Antrum <sup>4</sup>	Low	Yes
Spray bottles	37-157 µm	No	Antrum <sup>1</sup>	High	No
Irrigation bottles	Fluid	No	Broad <sup>3</sup>	Low	No

### References

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