Bridging the Pediatric Evidence Gap for Viral Prophylaxis With Intranasal Azelastine

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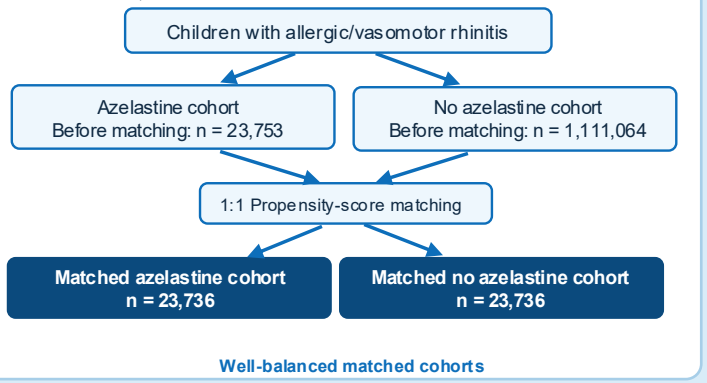
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Introduction

- Intranasal azelastine is widely used for allergic rhinitis, but pediatric evidence for viral upper respiratory infection prophylaxis is limited. Available pediatric data are sparse and largely based on small studies. Large electronic health record datasets allow real-world evaluation of whether azelastine exposure is associated with reduced short-term viral respiratory infections in children.
- **Objective:** To assess whether azelastine exposure is associated with reduced laboratory-confirmed viral respiratory infections in children.

Methods

- Retrospective cohort study using de-identified TriNetX US Collaborative Network data (68 HCOs; analysis run Nov 30, 2025).
- Included children <18 years with allergic or vasomotor rhinitis.
- Exposure cohort: intranasal azelastine prescription.
- Comparator cohort: similar patients without azelastine.
- Excluded immunocompromised patients and those with recent viral positivity within 6 months before index.
- 1:1 propensity-score matching on demographics, comorbidities, and nasal corticosteroid use.
- Outcomes within 60 days: COVID-19, rhinovirus, influenza A, influenza B, and RSV.



Results

- Matched cohorts included 23,736 patients per group.
- Azelastine use was associated with lower risk of multiple viral infections:

- **COVID-19:** 166/23,736 (0.7%) vs 306/23,736 (1.3%); RR 0.54 (95% CI 0.45–0.66), p<0.001
- **Influenza A:** 97/23,736 (0.4%) vs 177/23,736 (0.7%); RR 0.55 (95% CI 0.43–0.70), p<0.001
- **Influenza B:** 113/23,736 (0.5%) vs 192/23,736 (0.8%); RR 0.59 (95% CI 0.47–0.74), p<0.001
- **RSV:** 66/23,736 (0.3%) vs 112/23,736 (0.5%); RR 0.59 (95% CI 0.44–0.80), p=0.001

- **Rhinovirus** was not significantly different: 27/23,736 (0.1%) vs 38/23,736 (0.2%); RR 0.71 (95% CI 0.43–1.16), p=0.172.

Figure 1. 60-Day Risk of Laboratory-Confirmed Viral Infection

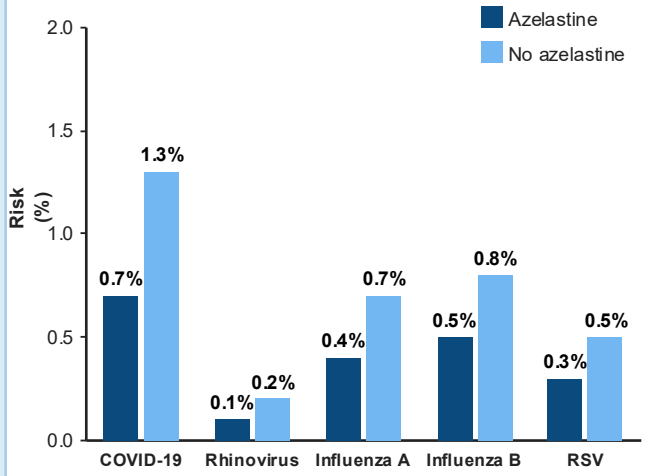
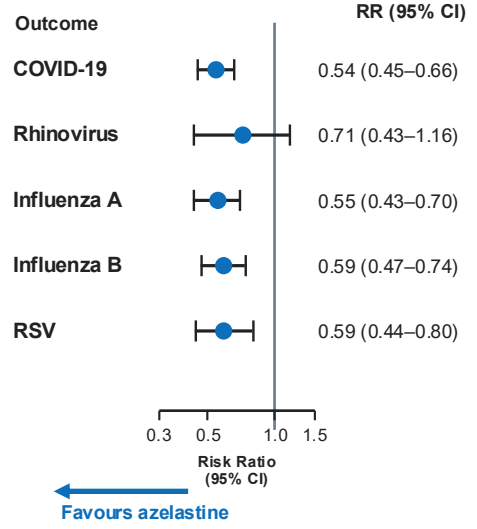


Figure 2. Risk Ratios for Viral Infection



Discussion

- In this large national pediatric cohort, azelastine exposure was associated with lower short-term risk of several laboratory-confirmed viral respiratory infections.
- The pattern was consistent across COVID-19, influenza A, influenza B, and RSV, while rhinovirus showed no significant difference.
- These findings reinforce earlier pediatric observations and align with emerging adult data, suggesting that a low-cost topical therapy may have adjunctive preventive potential.
- Limitations include observational design, coding-based exposure ascertainment, unknown adherence, and residual confounding.

Conclusion

Intranasal azelastine was associated with reduced short-term incidence of multiple viral respiratory infections in children with allergic or vasomotor rhinitis in this retrospective study using a large EHR database. These findings help support further prospective pediatric studies.

References

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