

Otitis Media with Effusion: Our National Practice

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We have recently assessed practice patterns of US clinicians as they relate to otitis media with effusion (OME) and the recommendations of the multidisciplinary guidelines published by the American Academy of Otolaryngology—Head and Neck Surgery Foundation (AAO-HNSF)^{1,2} and jointly by the AAO-HNSF and the American Academy of Pediatrics (AAP).³ **The recent guideline from the AAO-HNSF recommended against using antihistamines, antibiotics, oral steroids, and intranasal steroids for treating OME**, while the earlier document from the AAO-HNSF and the AAP recommended against all of these medications with the exception of intranasal steroids.³ We evaluated data from the National Ambulatory Medical Care Survey and National Hospital Ambulatory Medical Care Survey to help determine whether practice patterns were such that related provider metrics would be apt. We undertook this evaluation to quantify gaps in practice relevant to AAO-HNSF quality measures that were under review by the National Quality Forum.

In overview, the data demonstrated that 115,800 pediatric visits resulted in excess antihistamine usage per annum,⁴ while 413,600 culminated in a child's antibiotic prescription.⁵ In contrast, oral steroids were infrequently used in children,⁶ but intranasal steroids were administered in 134,020 pediatric patients per year.⁷ These children were therefore exposed to potential adverse effects from steroids, antibiotics, and antihistamines while gaining no benefits in hearing, risk of future surgery, or long-term OME resolution.

Antihistamines were administered in 4.1% of those with OME diagnoses, as opposed to the 2.1% baseline risk ($P \setminus .05$). The likelihood of receiving antihistamines with an OME diagnosis was significantly elevated, even when multivariate analysis adjusted for age, sex, race/ethnicity, allergic rhinitis, systemic allergy and other atopy, nonallergic rhinitis, upper respiratory tract infection, and visit setting (odds ratio [OR], 3.53; 95% confidence interval [CI], 1.62- 7.71; $P = .002$).⁴

When antibiotics were considered, there was an 18.8% increased risk of administration among children diagnosed with OME in the absence of acute otitis media ($P \setminus .0001$), suggesting that every sixth visit for isolated OME could result in a superfluous prescription. Even accounting for potential confounders including age, sex, race/ethnicity, a broad spectrum of infections, and visit setting, the odds of oral antibiotic administration remained significantly higher when OME was diagnosed (OR, 4.31; 95% CI, 2.88-6.44; $P \setminus .001$).⁵

Children did not have an increased risk for oral steroid prescriptions, although adults with OME, eustachian tube dysfunction, or tympanic membrane retraction were more likely to receive oral steroids than adults who did not carry these diagnoses.⁶

Intranasal steroids were administered in 10.0% of visits in which OME was diagnosed, in comparison to 3.5% of visits in which OME was not diagnosed ($P \backslash .05$). After adjusting for age, sex, race/ethnicity, confounding nasal conditions, and visit setting, multivariate analysis demonstrated that OME remained associated with an increase in intranasal steroid usage as well (multivariate OR, 3.58; 95% CI, 1.60-8.01; $P = .002$).⁷

The patterns of medication administration differed according to practice type. In the emergency room setting, non-sedating antihistamines and antibiotics were significantly more likely to be administered. In fact, the risk difference for antibiotic prescription was 37.1%, meaning that approximately every third visit for OME in the emergency department setting resulted in antibiotic administration. Although non-emergency room visits also showed an elevation in antihistamine and antibiotic administration when OME was present, the magnitude of excess use was less than in the emergency department for both classes of medication. In contrast, oral and intranasal steroid usage was higher outside the emergency department. Visits to an otolaryngologist were not associated with increased antihistamine or steroid administration and were in fact associated with a lower probability of antibiotic use (OR, 0.41; 95% CI, 0.29-0.57; $P \backslash .001$), so within our specialty, there may not be much impetus for change.

Knowing that prescribing patterns may vary by visit setting, education can be targeted according to practice type. For example, emergency department staff would aptly be encouraged to avoid antibiotic and antihistamine use for OME in the absence of allergy/atopic or infectious conditions with independent indications. In contrast, emergency room staff could be commended for better limiting unnecessary oral steroid and intranasal steroid prescriptions, while providers in office visit settings would be counseled to focus on minimizing oral and intranasal steroid use. In addition, as many of these medications are now also available “over the counter,” targeted patient education may also be needed to support evidence-based care.

As we strive to provide the highest quality care for our patients, we will benefit from introspectively assessing our own independent practice patterns. Understanding where our individual practices stand in relation to the national data across practice settings may allow us to preempt inappropriate prescribing (and its associated cost) and enhance patient safety in our own local clinics. Increasing awareness of the published data, guidelines, and related practice patterns will help guide not only our decisions but also the decisions of those who set policy.

These analyses have also demonstrated significant gaps in care that support including related quality measures in a qualified clinical data registry. The opportunities for quality improvement are greatest for not prescribing antibiotics or intranasal steroids and least for antihistamines and oral steroids. Given the high prevalence of OME in children, however, and the potentially serious adverse events of systemic steroids, a case could still be made for a quality measure despite the low performance gap in practice.

In summary, there are opportunities for quality improvement. Awareness of these findings may facilitate appropriate referral for definitive intervention in children who have OME and hearing loss, developmental difficulty, or substandard quality of life.

Author Contributions

Rachel E. Roditi, drafted the initial manuscript, imputed the data, approved the final manuscript as submitted; Richard M. Rosenfeld, reviewed and revised the manuscript, contributed to the presentation and interpretation of the data, approved the final manuscript as submitted; Jennifer J. Shin, draft writing, revisions for intellectual content, final approval.

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