

Editorial

From Evidence to Impact: Bridging the Gap Between Research and Clinical Practice in Pediatric Otolaryngology

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ABSTRACT

Evidence-based medicine (EBM) has reshaped modern healthcare by giving clinicians a framework for integrating the best available research evidence with clinical expertise and patient values. Yet despite considerable advances in research methodology, systematic reviews, and guideline development, a substantial gap persists between the generation of evidence and its implementation in daily practice. This challenge is especially pronounced in surgical specialties, including pediatric otolaryngology, where decision-making depends on a combination of published evidence, technical expertise, resource availability, and patient-specific considerations.

Pediatric otolaryngology has seen marked growth in evidence generation over the past two decades. Tympanostomy tube placement, the management of recurrent tonsillitis, pediatric sleep-disordered breathing, hearing loss, airway reconstruction, and Eustachian tube dysfunction have all benefited from increasingly rigorous studies and consensus guidelines. Translating these findings into consistent practice, however, remains difficult. Variations in healthcare systems, access to specialized services, surgeon experience, and local resources frequently shape management decisions in ways the literature does not capture.

A fundamental strength of EBM is its recognition that evidence alone is insufficient. High-quality evidence must be interpreted in the context of clinical expertise and patient-centered care. This principle is particularly important in pediatric populations, where treatment decisions affect not only the child but also families and caregivers. Shared decision-making, informed by the best available evidence, remains essential to achieving optimal outcomes.

Rapid technological evolution presents both opportunities and challenges for evidence-based practice. Innovations such as endoscopic ear surgery, balloon dilation of the Eustachian tube, advanced airway interventions, robotic-assisted procedures, and artificial intelligence-assisted diagnostics often enter clinical use before robust long-term evidence is available. Innovation is necessary for progress, but clinicians must balance enthusiasm for new technologies with critical appraisal of the data. Adoption should be guided by demonstrated safety, effectiveness, and meaningful patient outcomes rather than novelty alone.

Global disparities further underscore the importance of evidence translation. In many low- and middle-income countries, access to advanced diagnostics, specialized surgical equipment, and multidisciplinary teams is limited, so recommendations derived from high-resource settings may not be directly applicable. EBM must therefore engage with implementation science and global health perspectives to ensure that research findings are adaptable, equitable, and relevant across diverse healthcare environments.

Medical education is likewise central to strengthening evidence-based practice. Future physicians and surgeons must be trained not only to consume evidence but to critically evaluate research quality, understand statistical methodology, recognize

bias, and apply findings appropriately to individual patients. Cultivating these skills early in training fosters lifelong habits of inquiry and continuous improvement.

Looking ahead, the future of EBM will likely be shaped by large-scale clinical databases, real-world evidence, machine learning, and international collaborative research networks. These tools offer unprecedented opportunities to generate high-quality data, particularly for uncommon pediatric conditions in which single-center studies are often underpowered. Even so, the core principles of rigorous methodology, transparency, reproducibility, and patient-centered care must remain central to all future developments.

The ultimate goal of evidence-based medicine is not merely to produce more evidence but to improve patient outcomes. Achieving this requires a sustained commitment to translating research into practice, adapting evidence to local contexts, and maintaining a culture of critical evaluation and continuous learning. As clinicians, educators, and researchers, we share responsibility for ensuring that evidence moves beyond publication to become a meaningful driver of better care for the patients and communities we serve.
