

Fractional exhaled nitric oxide versus eosinophil count in induced sputum for monitoring to guide the management of children with asthma: a cost-utility analysis

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April 16, 2024

Abstract

Introduction Previous evidence has shown that FeNO and EO are cost-effective relative to standard of care in guiding the management of children with persistent asthma. There is some doubt as to if there are differences between these two biomarkers in terms of costs and benefits. Clarifying this doubt would allow to prioritize in the design of clinical practice guidelines. The study aimed to compare in terms of costs and benefits these biomarkers in patients with asthma between 4 and 18 years of age.
Methods A Markov model was used to estimate the cost-utility of asthma management using FeNO and EO in patients between 4 and 18 years of age. Transition probabilities, cost and utilities were estimated from previously published local studies, while relative risks were obtained from the systematic review of published randomized clinical trials. The analysis was carried out from a societal perspective. Results FeNO was associated with lower cost (US\$ 1333 CI 95% US\$ 1331-1335 vs US\$ 1452 CI 95% US\$ 1449-1454) and highest QALY (0.93 CI 95% 0.93-0.94 vs 0.92 CI 95% 0.91-0.92) than EO. In the sensitivity analyses, our base-case results were robust to variations of all assumptions and parameters. **Conclusion** Our study demonstrates that FeNO-guided treatment is better than EO because it offers a greater number of years of life with a lower cost per patient. This evidence should encourage the adoption of any of these techniques to objectively guide the management of children with asthma in routine clinical practice in low resource settings.

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Table 1.docx available at <https://authorea.com/users/316889/articles/712643-fractional-exhaled-nitric-oxide-versus-eosinophil-count-in-induced-sputum-for-monitoring-to-guide-the-management-of-children-with-asthma-a-cost-utility-analysis>

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