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Use of Impulse oscillometry for diagnostic of asthma in preschoolers: a cost-effectiveness analysis

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Abstract

Background Impulse oscillometry is an alternative to measure lung function in preschoolers because is much simpler and can be performed in tidal breathing with minimal patient cooperation. The introduction of new health technologies such as impulse oscillometry raises concerns as if the extra benefit offered outweighs the additional cost compared to spirometry This study aimed to evaluate the cost-effectiveness of impulse oscillometry in preschoolers in Colombia. Methods We conducted a decision tree model to estimate the cost and proportion of correctly diagnosed cases of asthma of impulse oscillometry compared to spirometry in preschooler's children between 3-6 years old . The analysis was carried out from a societal perspective. Multiple sensitivity analyses were conducted. Cost-effectiveness was evaluated at a willingness-to-pay value of $19,000. Results With impulse oscillometry, the proportion of correctly diagnosed cases was 42%, while with spirometry was 39%. The expected cost estimated by the model for a patient diagnosed with IOS was U$ 174 while with spirometry was U$ 99. The incremental cost-effectiveness ratio estimated in the probabilistic model was US$ 6881. The one-way and probabilistic sensitivity analyses, our base-case results were robust to variations of all assumptions and parameters Conclusion Impulse oscillometry was found to be cost-effective for the diagnosis of asthma in preschoolers. Our results should stimulate further research to expand the use of this diagnostic test in developing countries.

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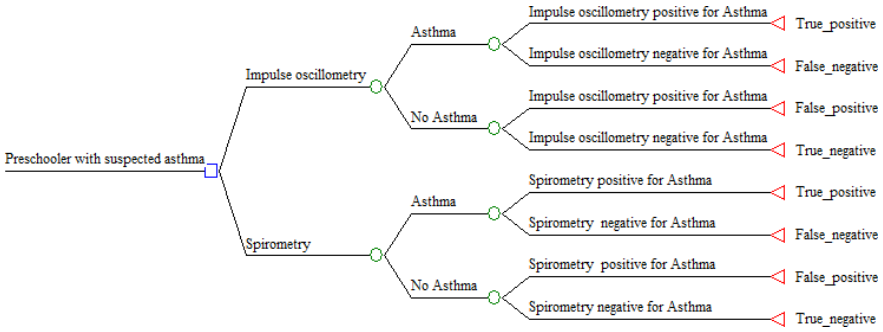

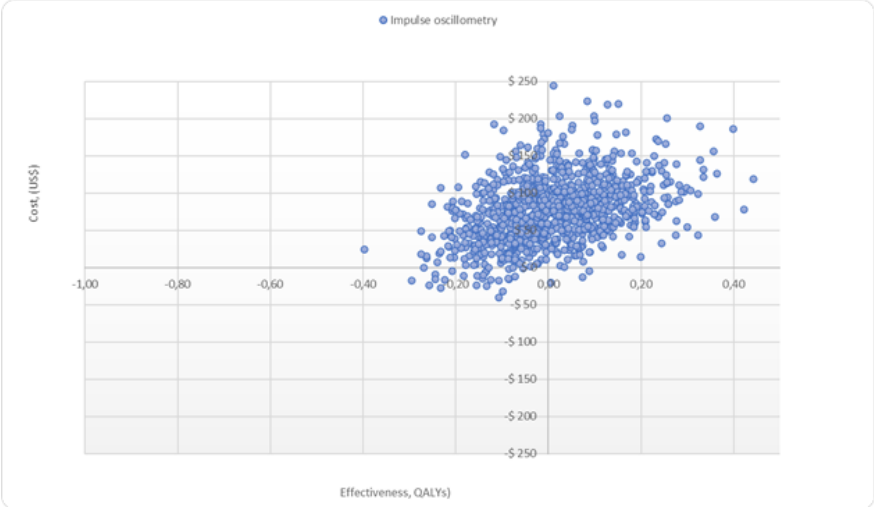

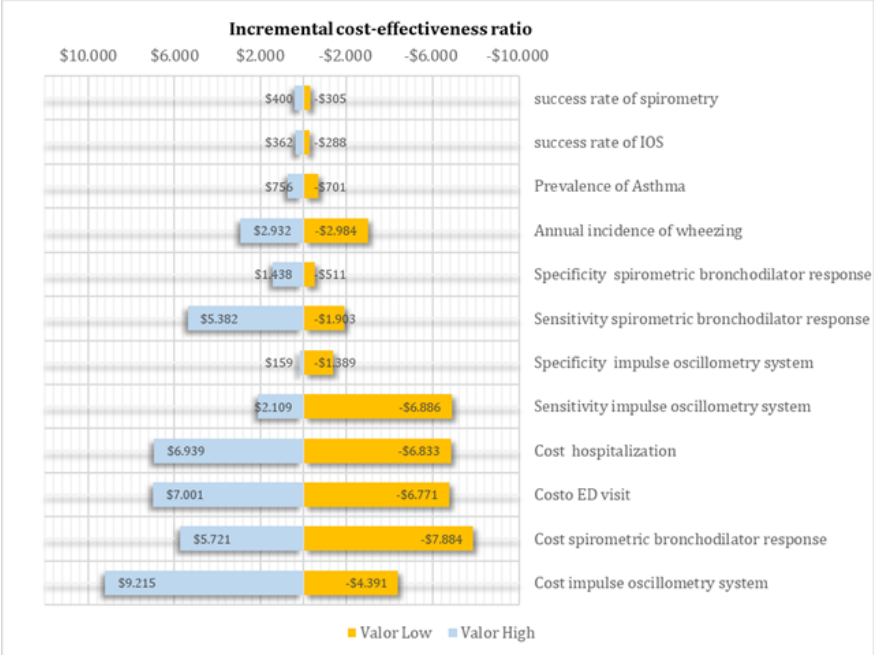

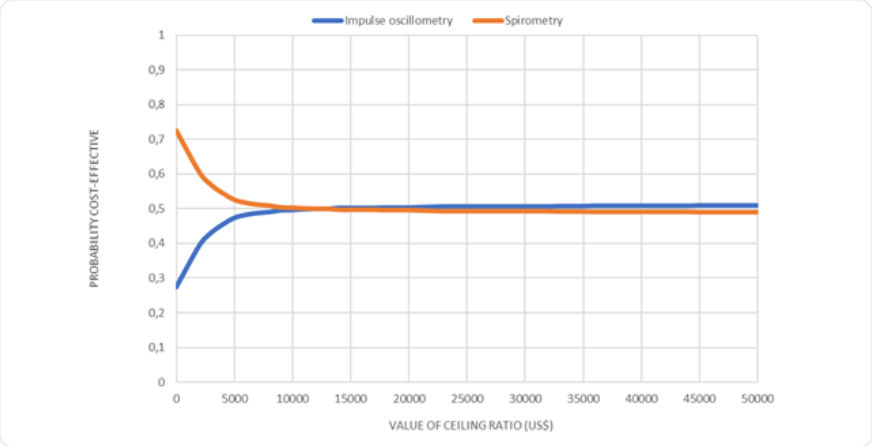

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