**Evidence-Based Medicine**

Practical Session 11: Diagnostic Articles

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**Objectives**

This group work aims to develop skills to calculate the pre & post-test probability for a laboratory test to diagnose common problems in clinical practice.

**Instructions**

The participants will be divided into small groups. Each group will use the given case scenarios and calculate the likelihood ratio, pre and post-test probability and decide whether the given tests will be applicable to the diagnosed disease. At the end, some of the groups will present their work and there will be an evaluation session.

**Problem**: There are a number of diagnostic tests with different sensitivity, specifity and likelihood ratios. Can we combine the findings from different examinations/tests to achieve a more certain diagnosis?

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| **Clinical feature** | **Sensitivity** | **Specificity** | **LR+** |
| Bulging tympanic membrane | 61  | 97  | 20.3 |
| Cloudy tympanic membrane | 81 | 95  | 16.2 |
| Impaired mobility of tympanic membrane | 98  | 79  | 4.7  |
| Parental suspicion of otitis media | 70  | 80  | 3.4 |
| Pulling at or rubbing the ear  | 42  | 87  | 3.3  |
| Otalgia | 54  | 82  | 3.0  |
| Rhinitis | 75  | 43  | 1.3  |
| Poor appetite | 36  | 66  | 1.1 |
| Cough | 47  | 45  | 0.9 |
| Fever | 40  | 48  | 0.8 |

Ramakrishnan K. et al. Diagnosis and Treatment of Otitis Media. *afp* 2007;76(11):1650-1658.

**Question**: What is the probability of otitis media diagnosis in the following case scenarios? (Please note: prevalence of otitis media among children below five years applying to family practice is around 15 %) (http://www.emedicine.com/ent/topic209.htm)

**Case 1:** Four years old boy is brought to you with high grade fever (38.3 °C) and poor appetite. The child is complaining of otalgia. In the examination you find bulging tympanic membrane. Cloudiness and mobility you could not evaluate. What is your probable diagnosis of otitis media?

**Case 2:** Nine months old girl is brought to your office with fever and rhinitis. You could not visualize the tympanic membrane but parents are telling you that the child is rubbing her ear and that the same symptoms they observed in their older son who was diagnosed with otitis media when he was one year old. Temperature is measured as 38.5 °C. What is your probable diagnosis of otitis media in this patient?