**Evidence-Based Medicine**

Practical Session 11: Diagnostic Articles

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## Answer Key:

### Case 1:

Four years old boy 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.

Data we have at hand to build our decision on:

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| **1. Fever *(Sensitivity=40%, Specificity=48%)*** |
| LR+ = 0.80 (too low. Will not be included in the decision) |
| **2. Poor appetite (*Sensitivity=36%, Specificity=66%)*** |
| LR+ = 1.1 (too low. Will not be included in the decision) |
| **3. Otalgia *(Sensitivity=54%, Specificity=82%)*** |
| Pretest odds = 0.15 / (1 - 0.15) = 0.176Prevalence 15% |
| LR+ = 3.0 |
| Posttest odds = 0.176 X 3 = 0.528 |
| Posttest probability = 0.528 / (1 + 0.528) = 34.55% |
| **4. Bulging tympanic membrane (*Sensitivity=61%, Specificity=97%)*** |
| Pretest odds = 0.345 / (1 - 0.345) = 0.5278 |
| LR+ = 20.3Pretest probability 34.6% |
| Posttest odds = 0.528 X 20.3 = 10.71 |
| Posttest probability = 10.71 / (1 + 10.71) = **91.53%** |

### 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.

Data we have at hand to build our decision on:

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| **1. Fever *(Sensitivity=40%, Specificity=48%)*** |
| LR+ = 0.80 (too low – useless) |
| **2. Rhinitis *(Sensitivity=75%, Specificity=43%)*** |
| LR+ = 1.3 (too low – useless) |
| **3. Parental suspicion (*Sensitivity=70%, Specificity=80%)*** |
| Pretest odds = 0.15 / (1 - 0.15) = 0.176 |
| LR+ = 3.4 |
| Posttest odds = 0.176 X 3.4 = 0.598 |
| Posttest probability = 0.598/ (1 + 0.598) = 37.4% |
| **4. Rubbing ear (*Sensitivity=42%, Specificity=87%)*** |
| Pretest odds = 0.374 / (1 - 0.374) = 0.598 |
| LR+ = 3.3 |
| Posttest odds = 0.598 X 3.3 = 1.97 |
| Posttest probability = 1.97/ (1 + 1.97) = **66.32%** |