**Nasopharyngeal rapid diagnostic testing to reduce unnecessary antibiotic use and individualize management of acute otitis media**

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**Supplemental Table 1: Factors used to determine tiering system in RDT\_DP and RDT\_OBS**

|  |  |  |  |
| --- | --- | --- | --- |
| Algorithm | Bacterial Agent | Prescription Type | Treatment |
| RDT\_DP | Any Streptococcus pneumoniae  | Immediate antibiotic treatment | Immediate Amoxicillin or Broad spectrum treatmenta |
| Any Haemophilus influenzae, no Streptococcus pneumoniae | Delayed antibiotic treatment | Delayed antibiotic treatmentb |
| Any Moraxella catarrhalis or no organism | Observation | Observation |
| RDT\_OBS | Any Streptococcus pneumoniae | Immediate antibiotic treatment | Immediate Amoxicillin or Broad spectrum treatmenta |
| No Streptococcus pneumoniae | Observation | Observation |

a If any organism produced beta-lactamase, a broad-spectrum antibiotic with beta-lactamase coverage (amoxicillin-clavulanate) was used instead of amoxicillin

b Patient sent home with prescription for antibiotics to be filled if symptoms worsen or do not improve in 48-72 hours

**Supplemental Table 2: Cost-effectiveness of rapid diagnostic testing algorithms for management of acute otitis media compared to usual care, observation only and 2013 American Academy of Pediatrics guidelines**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Strategy | Cost | QALD | ICER | Notes |
| Usual Care  | 334.8 | 29.88 |  | Strongly Dominated |
| Observation Only | 134.37 | 29.937 | Reference | Cost Saving |
| RDT\_DP  | 418.33 | 29.943 | 44789.7 |  |
| RDT\_OBS  | 439.27 | 29.917 |  | Strongly Dominated |
| AAP Guidelines | 142.57 | 29.90 |  | Strongly Dominated |

**Supplemental Text-Additional Methods for Observation and American Academy of Pediatrics Guideline Arms:** The observation only algorithm assumes that 81% of all children will be cured by observation alone1, 2 and that the other 19% follow the probabilities for usual care listed in Table 1. The second algorithm is for current American Academy of Pediatrics (AAP) guidelines3 with the assumption that 38% of children currently diagnosed with AOM do not meet the AAP criteria for AOM4-8. In our decision tree, this group of children then follow the observation only branch. Among the 62% of children that do have AOM, they either receive immediate amoxicillin (based on age or severity of symptoms; 22%)4, 5 or a delayed prescription (78%). We assumed that clinicians would be more likely to use delayed prescribing compared to observation. The AAP recommendations use the term “initial observation” and do not clearly differentiate between observation or delayed prescribing.

**References**

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