Taking an Antibiotic or Not?

ACUTE RESPIRATORY TRACT INFECTIONS (ARI) Diagnostic Decision Support Tool

Steps 1 and 2: Complete the Diagnostic Decision Support Tool according to your patient’s ARI to estimate his/her probability of bacterial infection.
Step 3: Share your estimate of probability with your patient.
Step 4: Communicate the therapeutics options regarding the use of antibiotics (taking or not taking) and the benefits and risks associated with each option.
Step 5: Clarify the values and preferences of your patient regarding each option.
Step 6: Evaluate the decisional comfort of your patient regarding his/her decision.

ACUTE RHINOSINUSITIS

To differentiate patients with an ACUTE RHINOSINUSITIS due to a bacteria from those whose ACUTE RHINOSINUSITIS is due to a virus

Step 1

Tick all the key symptoms and signs identified in your patient with symptoms of rhinosinusitis

Initial Question
Duration of symptoms
- < 10 days
- ≥ 10 days

Additional Questions
- Double sickness (worsening after improving)
- Colored nasal discharge
- Facial sinus pain
- Maxillary tooth pain
- No response to decongestants

Additional Signs
- Purulent discharge in nasal cavity (middle meatus) and/or throat
- Sinus pain on one side
- Abnormal transillumination (one side)

Alerts
- Persistent high fever
- Severe ill
- Orbital swelling or erythema
- Diplopia, proptosis or other neurologic signs

Step 2

Encircle the clinical probability (%) of a bacterial acute rhinosinusitis according to signs and symptoms of patients assuming a prevalence of 15%

- 4+ <10 days: 30% >10 days: 95%
- 3 <10 days: 15% >10 days: 75%
- 2 <10 days: 5% >10 days: 50%
- 1 <10 days: 2% >10 days: 25%
- 0 <10 days: 1% >10 days: 5%

*Adults 7-10 days; children 10-14 days

ACUTE BRONCHITIS

To diagnose ACUTE BRONCHITIS excluding other possible causes of cough

Step 1

Consider the diagnosis of acute bronchitis if:
- Cough
- ≤ 3 weeks

Note
The presence or the absence of expectorations, either coloured or clear, cannot differentiate patient with an acute bronchitis from those without an acute bronchitis.

Step 2

Among the following diagnosis, tick (and exclude) all those that are less probable than an acute bronchitis

Diagnoses to exclude
- Pneumonia
- COPD with infection
- ARTI/rhinosinusitis
- Whopping cough
- Influenza
- Bronchiolitis (children)
- Asthma
- Other

Decision

Pneumonia is excluded (<1%) if vital signs and lung exam are both normal.

If all these diagnoses are excluded then acute bronchitis is most probable. The probability is then about 10% that the patient is suffering a bacterial infection (vs. viral).
**ACUTE PHARYNGITIS**

**STEP 1**
Encircle all symptoms and signs of your patient who has a sore throat and calculate the total score (minimum -1 and maximum +5).

**Symptoms and Signs**

<table>
<thead>
<tr>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aged 3 to 15 years</td>
<td>+1</td>
</tr>
<tr>
<td>Aged 44 years or more</td>
<td>-1</td>
</tr>
<tr>
<td>No cough</td>
<td>+1</td>
</tr>
<tr>
<td>Temperature ≥ 38°C</td>
<td>+1</td>
</tr>
<tr>
<td>Tender cervical adenopathy</td>
<td>+1</td>
</tr>
<tr>
<td>Tonsillar swelling or exudates</td>
<td>+1</td>
</tr>
</tbody>
</table>

**Additional Signs**
- Close contact ≤2 weeks or epidemic

**Alerts**
- Stiff neck in children (abscess)
- Lateral shifting of the uvula (abscess)
- Stridor and dyspnea (epiglottitis)
- Skin rash (scarlet fever)

**STEP 2**
Encircle the clinical probability (%) of Group A streptococcal pharyngitis according to questionnaire and physical exam assuming a prevalence of 15%.

<table>
<thead>
<tr>
<th>Score</th>
<th>Contact-</th>
<th>Contact+</th>
</tr>
</thead>
<tbody>
<tr>
<td>4+</td>
<td>50%</td>
<td>65%</td>
</tr>
<tr>
<td>3</td>
<td>30%</td>
<td>45%</td>
</tr>
<tr>
<td>2</td>
<td>15%</td>
<td>25%</td>
</tr>
<tr>
<td>1</td>
<td>8%</td>
<td>15%</td>
</tr>
<tr>
<td>0</td>
<td>1%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Probability increases in the context of an epidemic.

**ACUTE OTITIS MEDIA**

**STEP 3 to 6 on the Shared Decision Making Support Tools**

**STEP 1**
Tick all symptoms and signs of your patient in whom you suspect acute otitis media.

**Questions**

- Otalgia
- Distinct, sudden, and interfering with normal activities or sleep
- Suspicion of an AOM by parents

**Exam**

- Inflammation of middle ear
- Fluid in the middle ear
- Bulging of ear drum
- Lost or limited mobility of ear drum
- Air-fluid level behind ear drum
- Otorrhea

**Alerts**
- Persistent high fever
- Severely ill

**STEP 2**
Encircle the clinical probability (%) of acute otitis media according to questionnaire and exam assuming a prevalence of 20%.

<table>
<thead>
<tr>
<th>Symptoms or signs</th>
<th>No otalgia</th>
<th>Otolgia*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflammation AND fluid</td>
<td>99%</td>
<td>99%</td>
</tr>
<tr>
<td>Fluid</td>
<td>40%</td>
<td>85%</td>
</tr>
<tr>
<td>No inflammation</td>
<td>20%</td>
<td>60%</td>
</tr>
<tr>
<td>No fluid</td>
<td>&lt;1%</td>
<td>3%</td>
</tr>
</tbody>
</table>

* or suspicion of AOM by parents

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**ACUTE RESPIRATORY TRACT INFECTIONS (ARI)**

**STEP 3: DIAGNOSTIC PROBABILITY OF BACTERIAL INFECTION**

Show your patient his/her probability to have a bacterial infection by illustrating his/her probability and explicitly share the uncertainty associated to this estimate.

(Specify the ARI)

<table>
<thead>
<tr>
<th>Probability (%)</th>
<th>No Antibiotics</th>
<th>Antibiotics</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>90%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**STEP 4: BENEFITS AND RISKS OF TAKING AN ANTIBIOTIC OR NOT**

**Benefits**
Associated with taking antibiotics to treat an ARI

- **Acute rhinosinusitis**, acute bronchitis, acute pharyngitis, acute otitis media

**Legend**
- Cured with no antibiotics
- Cured due to antibiotics
- Not cured

**Definition of cured**
- Rhinosinusitis: Better/cured 1 wk
- Bronchitis: No cough 2 wks
- AOM: No pain 2-3 days
- Pharyngitis: No pain 4-5 days

**No Antibiotics**

**Antibiotics**

- On average, antibiotics reduce symptoms by a few hours to a day.

**Risks**
Associated with taking antibiotics to treat an ARI

**Legend**
- No problems
- Problems
- Problems due to antibiotics

**Definition of problems**
- Health problems: Such as: 
  - Diarrhea
  - Stomach ache
  - Skin rash

**No Antibiotics**

**Antibiotics**

- On the other hand, among the 100 patients similar to you, who take an antibiotic, 5 (in brown) will have significant side effects caused by the antibiotic such as diarrhea, stomach aches, or allergic reactions.

**Explanation**

- If 100 patients similar to you don’t take an antibiotic, 70 won’t have a symptom... (define symptom according to specific ARI)...after... days/weeks, and 30 will still have...after... days/weeks. If 100 patients similar to you take an antibiotic, 10 more (in green) won’t have a symptom after... days/weeks. These 10 on 100 are the only one who benefit from taking an antibiotic.

- On the other hand, among the 100 patients similar to you who take an antibiotic, 5 (in brown) will have significant side effects caused by the antibiotic such as diarrhea, stomach aches, or allergic reactions.

- I can’t tell you if you will be in these who will benefit (in green), those who will have side effects (in brown) or, as the majority, those who will take them for nothing.

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**STEP 5: PATIENT VALUES AND PREFERENCES**

Ask two questions to your patient:

1. "What is **most important** to you in the benefits and risks of **taking** an antibiotic and in the benefits and the risks of **not taking** an antibiotic?"
2. "Are there **other things important** to you that would make you decide to **take** or **not to take** an antibiotic?"

Use the balance of benefits and risks as a visual decision aid with your patient:

1. Review the most common benefits (reason for taking) and risks (reasons for not taking).
2. Add any other reasons important to your patient.
3. Identify how much each listed benefit and each risk is important to your patient. Encircle one star (*) if an item is not very important to him/her and up to five stars (*****) if an item is very important to him/her. Do not encircle any star if an item is not at all important to him/her.

<table>
<thead>
<tr>
<th>Benefits (reasons for taking)</th>
<th>Risks (reasons for not taking)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Having symptoms for a little less longer…</td>
<td>• Taking pills for many days</td>
</tr>
<tr>
<td>Rhinosinusitis: ~1 day on 1 week</td>
<td>• Having side effects such as diarrhea, stomach ache, nausea, allergic reactions</td>
</tr>
<tr>
<td>Bronchitis: ~½ to 1 day on 2-3 weeks</td>
<td></td>
</tr>
<tr>
<td>AOM: ~few hours on 2-3 days</td>
<td>• Having symptoms for a little longer…</td>
</tr>
<tr>
<td>Pharyngitis: ~1 day on 4-5 days</td>
<td>• Not having side effects</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Taking an antibiotic</th>
<th>Not taking an antibiotic</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Healing without drugs</td>
<td>• Not having side effects</td>
</tr>
</tbody>
</table>

**STEP 6: DECISIONAL COMFORT**

<table>
<thead>
<tr>
<th>S. ure of myself…</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Do you feel SURE about the best choice for you?</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>U. nderstand information…</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>2) Do you know enough about the benefits and risks of taking an antibiotic and of not taking an antibiotic?</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>R. isks/benefits ratio…</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>3) Are you clear about which benefits and risks of taking an antibiotic and of not taking an antibiotic matter most to you?</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E. ncouragement…</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>4) Do you have enough support and advice to make a choice?</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>