Inappropriate antibiotic use for cough and URTIs

Alike van der Velden
University Medical Centre Utrecht, The Netherlands

American Cough Conference, Washington, DC
June 2015
GRIP: Global Respiratory Infection Partnership

Aim: To decrease inappropriate antibiotic use by developing a consistent global approach for behavioural change

- Reducing antibiotic resistance
- Securing antibiotic treatments and public health for the future

Prof. Attila Altiner
Mr John Bell
Prof. Sabiha Essack
Prof. Roman Kozlov
Dr Martin Duerden
Dr Doug Burgoyne
Dr Martin Duerden
Dr Laura Noonan
Dr Ashok Mahashur

Prof. John Oxford
Prof. Antonio Pignatari
Dr Aurelio Sessa
Dr Alike van der Velden
Dr Laura Noonan
Dr Ashok Mahashur
Alike van der Velden: disclosures

- Employee of Julius Centre for Health Sciences and Primary Care – University Medical Centre Utrecht
- Research supported by The Netherlands organization for health research and development (ZonMw) and the European Union (FP7)
- The consumer survey reported herein was conducted by RB
- The Global Respiratory Infection Partnership was convened by RB. All materials are sponsored by and developed in partnership with RB Healthcare. The views expressed in the materials are those of the Partnership
Patient consultation for cough and RTI

Reasons for consultation:
- Worry about the illness (severity, duration)
- Rule out serious complication
- Medication to treat or reduce their symptoms
  - Physicians tend to over-estimate patients’ desire for an antibiotic1,2

Patients’ expectations are usually not directly explored
- Reassurance, diagnosis (based on physical examination)
- Overall advice and/or with respect to pain/symptomatic relief3
- Information on natural course and self-limitedness of disease

Misperceived patient expectations, limited time, patients’ pressure for antibiotics – often for wrong reasons
  - diagnostic uncertainty
- Overprescribing of antibiotics for respiratory disease

Antibiotics for cough/bronchitis and URTIs

Most RTIs have a viral origin
- More than 90% of acute coughs are non-bacterial\(^1\)
- Bronchitis: ~50% no causal agent, >25% viral, <25% bacterial

Favorable natural course of disease
- Often self-limiting
- Complications are rare

Limited effectiveness of antibiotics
- Bronchitis: NNTB=8, reduction in duration of symptoms=14 hours\(^2\)
- Sinusitis: NNTB=18\(^3\)
- Sore throat/tonsillitis: NNTB=20\(^4\)

---

NTTB = Number needed to treat for benefit
Overprescribing of antibiotics for RTIs

Data from The Netherlands

Compare 2,700 RTI consultations to the evidence-based prescribing guidelines to determine appropriate prescribing and over-prescribing.
Overprescribing of antibiotics for RTIs
Data from The Netherlands¹

- In one-third of RTI consultations, an antibiotic is prescribed
- Overprescribing: 46% of prescriptions
- Most overprescribing for lower RTIs (cough/bronchitis)

Consequences of antibiotic overprescribing

- **Bacterial resistance**

Consumption of beta-lactam penicillins

*Streptococcus pneumoniae* isolates non-susceptible to penicillin

The GRIP 5P framework

Framework for an evidence-based, non-antibiotic approach in the management of URTIs¹

Approach aims to change behavior

- Adaptable across countries
- Can provide a global and regional framework for change

Patient behavior in RTI consultation

Study methods


- Europe, Asia, Africa, Australasia, North/South America
- 15-minute online questionnaire
- Minor ailments in five categories* in previous 12 months
  - Pain
  - Gastric, bowel
  - Foot
  - Cough, cold, respiratory
  - Eye
- 17,302 subjects responded (24,561 RTI episodes)
- Questioning:
  - Why they visited a HCP
  - Who they consulted (what kind of HCP)
  - Result of visit (recommendation, prescription – antibiotic, other)
  - Did they obtain the product prescribed or recommended
  - Antibiotic use

* Subjects were also asked about blood pressure, cholesterol levels, eczema, and diabetes
Results: consultation for cough – why, who, outcome*

- Reasons for consulting any physician for cough:
  - “I needed a prescription” – 26.1%
  - “This person is the expert” – 23.6%
  - “This person knows my medical history” – 21.2%
  - “This is the person I trust the most” – 21.2%

- Who do they consult for cough?
  - 10.7% of subjects contacted a HCP
  - 9.0% of subjects contacted a physician
  - 8.6% contacted a GP

- For subjects consulting any physician for cough:
  - 18.9% were recommended an antibiotic
  - 19.2% were prescribed an antibiotic

* Averaged results for chesty cough/chest congestion and dry tickly cough.
Results: antibiotic use for RTI

<table>
<thead>
<tr>
<th>All HCP, 33 countries</th>
<th>Antibiotic use</th>
<th>No</th>
<th>Yes*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of encounters for all conditions, N (% total)</td>
<td></td>
<td>52,769 (80)</td>
<td>13,306 (20)</td>
</tr>
<tr>
<td><strong>RTI† encounters, N</strong></td>
<td></td>
<td>10,104</td>
<td>5,259</td>
</tr>
<tr>
<td>– Proportion of all RTI encounters, %</td>
<td></td>
<td>66</td>
<td>34</td>
</tr>
<tr>
<td><strong>Chesty cough‡ encounters, N</strong></td>
<td></td>
<td>1,474</td>
<td>941</td>
</tr>
<tr>
<td>– Proportion of chesty cough encounters, %</td>
<td></td>
<td>61</td>
<td>39</td>
</tr>
<tr>
<td><strong>Dry tickly cough encounters, N</strong></td>
<td></td>
<td>2,330</td>
<td>1,180</td>
</tr>
<tr>
<td>– Proportion of dry tickly cough encounters, %</td>
<td></td>
<td>66</td>
<td>34</td>
</tr>
<tr>
<td><strong>All cough encounters, N</strong></td>
<td></td>
<td>3,804</td>
<td>2,121</td>
</tr>
<tr>
<td>– Proportion of all cough encounters, %</td>
<td></td>
<td>64</td>
<td>36</td>
</tr>
<tr>
<td>– Proportion of total encounters for all conditions, %</td>
<td></td>
<td>–</td>
<td>16</td>
</tr>
</tbody>
</table>

*For all conditions, most encounters resulting in antibiotic use were in Indonesia (37%), UAE (35%) and Malaysia (35%)

†RTI: sore throat; nasal congestion; sinus pain; laryngitis (no hay fever), chesty cough, dry/tickly cough.
‡Chesty cough/chest congestion.
## Results: contacts and prescribing for cough

<table>
<thead>
<tr>
<th>Countries</th>
<th>Total*</th>
<th>Brazil</th>
<th>Germany</th>
<th>India</th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>UAE</th>
<th>UK</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subjects with chesty cough/ chest congestion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% contacted any HCP</td>
<td>8.6</td>
<td>4.0</td>
<td>4.7</td>
<td>12.4</td>
<td>16.0</td>
<td>13.7</td>
<td>9.7</td>
<td>6.2</td>
<td>8.5</td>
</tr>
<tr>
<td>% contacted GP</td>
<td>7.1</td>
<td>3.8</td>
<td>3.0</td>
<td>11.6</td>
<td>14.7</td>
<td>12.0</td>
<td>8.0</td>
<td>4.7</td>
<td>7.4</td>
</tr>
<tr>
<td>% Ab Rx†</td>
<td>21.7</td>
<td>14.3</td>
<td>10.0</td>
<td>17.2</td>
<td>28.0</td>
<td>17.5</td>
<td>11.6</td>
<td>23.1</td>
<td>33.3</td>
</tr>
<tr>
<td><strong>Subjects with dry tickly cough</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% contacted any HCP</td>
<td>12.7</td>
<td>13.6</td>
<td>8.3</td>
<td>19.3</td>
<td>15.8</td>
<td>13.9</td>
<td>17.4</td>
<td>4.9</td>
<td>5.1</td>
</tr>
<tr>
<td>% contacted GP</td>
<td>10.0</td>
<td>10.2</td>
<td>6.1</td>
<td>17.0</td>
<td>14.3</td>
<td>12.0</td>
<td>13.8</td>
<td>2.5</td>
<td>3.8</td>
</tr>
<tr>
<td>% Ab Rx†</td>
<td>16.6</td>
<td>11.9</td>
<td>0.0</td>
<td>12.9</td>
<td>33.3</td>
<td>18.8</td>
<td>14.5</td>
<td>21.4</td>
<td>23.8</td>
</tr>
</tbody>
</table>

*Aggregate data across all 33 countries.
†Proportion of patients consulting any physician and receiving a prescription for an antibiotic.
Conclusion: what do these data tell us?

- >1/5 of subjects expect a prescription for cough
- HCP contacts driven by trust and confidence in the HCP
- >1/3 all RTI encounters and >1/3 all cough encounters resulted in antibiotic use
- Cough accounted for ~16% of antibiotic use, a greater proportion than any other condition
- GPs accounted for most HCP contacts for cough
- Many patients with uncomplicated cough still receive antibiotics
Recommendations

- Inappropriate antibiotic prescribing for cough must be reduced to mitigate further growth of antibiotic-resistant infections
- Further professional education is needed for prescribers, especially in primary care, with an emphasis on communication and symptomatic relief
- GPs are in a key position to advise and educate patients on symptomatic treatment options
- Patient education on appropriate expectations and effective self-management is needed
- Coordinated changes at global and local levels are needed for effective implementation of antibiotic stewardship
Implementing GRIP’s 1, 2, 3 approach

- GP, nurses and pharmacy personnel need to take an active approach to educate their patients with respect to antibiotics and RTIs and direct them towards self-management strategies.

- GRIP’s 1, 2, 3 approach helps HCPs to:
  - Take a consistent approach to the management of RTIs
  - Put the patient at the center of the consultation
  - Direct towards symptomatic treatment, where appropriate

- GRIP’s 1, 2, 3 approach:
  - Address patients’ concerns
  - Be vigilant – assess severity
  - Counsel on effective self-management

- A toolkit with template materials for HCPs and patients is available on the GRIP website.

- GRIP is committed to continue to bring to life its declaration of Implementing GRIP’s 1, 2, 3 approach.