Prescribing antibiotics: who or what determines it?

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COMMON COLD

SORE THROAT

COUGH

Lancet 2003, 361:51

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FM Haaijer-Ruskamp
Prescribing decisions

- **Patient**
- Knowledge, attitudes, habits, experiences
- **Doctor making decisions**
- Prescription

Other parties actively and passively influencing
Determinants

- Patient
- Doctor
- Prescription

Factors:
- Culture
- Health insurance
- Reimbursement structure
- Pharmaceutical industries
- Academia
- Professional organisations
- Colleagues
- Other professionals
What do GPs say

- Doctors know the evidence
- Patient pressure, too difficult to change pts beliefs in the consultation room
- prescription for doctor-pat relationship
- clinical signs: green phlegm, pus on tonsils, pt look very unwell
- Resistance is community problem, GPs’ priority is individual patient
- Secondary care and veterinary use more important for resistance then GPs prescribing

Butler et al 1998, Kumar et al 2003
• Telephone prescribing of antibiotics
  – 18% in Norway (Rokstad, 1997)

• perception of GPs of telephone prescribing of AB
  – uncomfortable
  – pat demands
  – pragmatic (traveling time)
## Interventions to optimise antibiotic prescribing in primary care (25 RCT/CCT)

<table>
<thead>
<tr>
<th>Type of intervention</th>
<th>countries</th>
<th># pos studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>academic detailing</td>
<td>US, Australia, UK, Spain</td>
<td>8</td>
</tr>
<tr>
<td>Indiv (mailed) feedback</td>
<td>Australia Canada</td>
<td>1 + 1 -</td>
</tr>
<tr>
<td>Interact - workshop, audit &amp; feedback</td>
<td>NL, SW, DK, SLOV, UK, NO, US, Canada</td>
<td>11</td>
</tr>
<tr>
<td>Interact workshops + patient education</td>
<td>Canada, US</td>
<td>3</td>
</tr>
<tr>
<td>delayed prescription strategy, with/without pat information</td>
<td>UK</td>
<td>1</td>
</tr>
</tbody>
</table>
Complex GP targeted intervention in Norway

- Summary of the main recommendations in electronic and poster format
- Patient educational material in electronic and paper format
- Computer based decision support and reminders during consultations
- An increase in the fee for telephone consultations for these two diagnoses with no change in the fee for an office visit
- Printed material to facilitate discussions in the practice
- Interactive courses for GPs and assistants
- Points in the CME programme

Flottorp et al 2002
## Results

<table>
<thead>
<tr>
<th></th>
<th>Interv</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline</strong></td>
<td>48.1%</td>
<td>50.8%</td>
</tr>
<tr>
<td><strong>Outcome</strong></td>
<td>43.8</td>
<td>49.5</td>
</tr>
<tr>
<td><strong>% change</strong></td>
<td>-4.3</td>
<td>-1.3%</td>
</tr>
<tr>
<td><strong>% difference</strong></td>
<td></td>
<td>3.0%</td>
</tr>
</tbody>
</table>

% patients with antibiotics for sore throat

Flottorp et al 2002

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Conclusion GPs

- GPs important factor in overuse
- Effective strategies available to limit overuse
- Need for broad implementation
- Success is not self evident
- CAVE: slow intensive effort
Patients and the General Public
<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Fr</th>
<th>Germ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>acute tonsillopharyngitis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>office visits/ 1000</td>
<td>136</td>
<td>51</td>
</tr>
<tr>
<td>antibiotic prescr/ 100</td>
<td>94.6</td>
<td>69.6</td>
</tr>
<tr>
<td><strong>Common Cold</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>office visits/ 1000</td>
<td>253</td>
<td>19</td>
</tr>
<tr>
<td>antibiotic prescr/ 100</td>
<td>48.7</td>
<td>7.7</td>
</tr>
<tr>
<td><strong>% NOT receiving antibiotics first visit</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>suspected community acquired pneumonia</td>
<td>8</td>
<td>23</td>
</tr>
<tr>
<td>acute bronchitis</td>
<td>7</td>
<td>31</td>
</tr>
<tr>
<td>exacerbation chronic bronchitis</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td>viral lower respiratory tract infection</td>
<td>20</td>
<td>41</td>
</tr>
<tr>
<td><strong>% diagnostic tests suspected LRT infection</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>chest radiograph</td>
<td>18</td>
<td>27</td>
</tr>
<tr>
<td>peripheral blood leukocyte count</td>
<td>14</td>
<td>27</td>
</tr>
<tr>
<td>microbiologic sputum examination</td>
<td>3</td>
<td>12</td>
</tr>
</tbody>
</table>

Harbarth et al 2002
Patients’ on antibiotics in relation to their doctors

• Patients (more then doctors):
  – antibiotics necessary for sore throat, cough
  – antibiotics speed up recovery
  » Van Duijn et al 2002

• Patient pressure and prescribing response:
  – expectance --> RR +
  – GPs perceive expectance --> RR ++
  » Cockburn et al 2003
PAACT
Partners for Appropriate Anti-infective Community Therapy

Name: _____________________________ Date: ______________

Your symptoms today suggest a viral infection:
☐ Cold ☐ Flu ☐ Pharyngitis ☐ Laryngitis ☐ Bronchitis

Flu, colds and 90% of sore throats are viral infections. Antibiotics are no effective treatment. Using no antibiotic is therefore safer and your infection will get better just as quickly.

Some suggestions for treating your symptoms:
- Drink plenty of fluids and get as much extra rest as possible.
- Throat pain is lessened by sucking on hard candy or ice chips or by gargling salt water (1/4 tsp. salt in warm water).
- Acetaminophen (Tylenol, Tempra), or Ibuprofen (Motrin, Advil) help to relieve stubborn viral aches and fever.
- Ask your pharmacist’s advice for relief of cough, congestion, fever or aching.

Please return to see your usual family physician if:
- Your symptoms are getting worse instead of better.
- Your symptoms become different than expected.
- You develop a new or higher fever.
- You are not noticing improvement in _______ days.
- Please inform the doctor of any other conditions such as asthma, heart disease, diabetes, cancer or immune disorder.

Thank you. _____________________________ M.D

© 2000 PAACT (John I. Stewart, M.D./MDMS)
Users’ expectations (%)

Branthwaite et al 1996
Understanding patients’ perceptions

- disease labeling
  - labels on symptoms
  - seriousness, uncertainty
- coping strategy
- attitudes / beliefs about antibiotics
Disease labeling, B en NL

• Belgium
  – either not labelled or bronchitis
  – bronchitis: ‘heavy cold’, probable cases of influenza
  – bronchitis and flu are ‘serieux’ diseases

• Netherlands
  – cold
  – common flu vs real flu
  – seldom serious

Deschepper et al 2002
## Coping strategies

<table>
<thead>
<tr>
<th></th>
<th>Flanders</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>do nothing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>nurse one’s illness</td>
<td></td>
<td>++</td>
</tr>
<tr>
<td>self medication</td>
<td>++</td>
<td></td>
</tr>
<tr>
<td>consult doctor</td>
<td>++</td>
<td></td>
</tr>
</tbody>
</table>

Deschepper et al 2002
## Attitudes and beliefs about antibiotics

<table>
<thead>
<tr>
<th>Statement</th>
<th>Flanders</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>better safe then sorry</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>if there is no alternative (doctor’s decision)</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td>accepting, but rather not refusing</td>
<td>++</td>
<td>+</td>
</tr>
</tbody>
</table>

Deschepper et al 2002
NON- COMPLIANCE
% pats *not* completing antibiotic course

<table>
<thead>
<tr>
<th>Country</th>
<th>Feel Better</th>
<th>Other Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>16%</td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>Turkey</td>
<td>29%</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>34%</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>42%</td>
<td></td>
</tr>
</tbody>
</table>

Branthwaite et al, 1996
context

• Impact rules and regulations, unknown
  – reimbursement, large variation in EU
  – renumeration of pharmacists
    • better for large quantities

• Cultural context
Reimbursement strategies

- full out-of-pocket payment
- fixed fee
- co-insurance
  - patient charges
- fixed deductible
- full reimbursement

European situation
- 2 countries, mostly
  - Lith, Ro
- 3 countries (UK, De, Aust)
- 14 countries
  - Fi, La, Hu, Pol, Esp, Fr, No
  - Port, Bul, Be, Gr, Slo, Lx, Tur
- 6 countries
  - Dk, Sw, Ice, Ma, Irl, CH
- 5 countries
  - NL, Hr, Cz, Sk, It

Adjusted from: M. Ferech; ESAC 2003
Culturally determined attitudes

- Uncertainty avoidance
- Power distance
- Short-term versus long-term orientation
- Individualism versus collectivism
- Femininity versus masculinity

- correlation between A.B. use (Cars, 2001) and Hofstede’s data
Use of antibiotics and uncertainty avoidance index (UAI)

Antibiotic use in DDD/1000 inhabitants and day

Uncertainty Avoidance Index

Deschepper, 2002

r = 0.70
Antibiotic use and Power Distance Index (PDI)

Antibiotic use in DDD/1000 inhabitants and day

Power Distance Index (PDI)

France  Spain  Portugal  Belgium  Italy  Greece  Finland  Ireland  England  Austria  Germany  Sweden  Denmark  Netherlands

r = 0.83
Long-term orientation and antibiotic use

![Graph showing long-term orientation and antibiotic use](image_url)
Conclusions

• doctors’ role  
   – aware of their own role  
   – need for targeted support, not more information

• patients’ role  
   – overestimate the need and usefulness of drugs  
   – non-compliance and self medication

• reimbursement strategies: large variation, little known about relevance for AB

• cultural background seems to be relevant
SWAB Symposium