Quality indicators of antibiotic use in the inpatient setting: a global consensus procedure

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DRIVE-AB

• Driving Re-Investment in R&D and Responsible Antibiotic Use

• Funded by the Innovative Medicines Initiative

• New Drugs for Bad Bugs program

• www.drive-ab.eu
Aim

To identity Quality Indicators (QIs) for antibiotic use in the inpatient setting
Quality Indicators

‘Measurable elements of practice performance for which there is evidence or consensus that they can be used to assess quality, and hence change in the quality of care provided’

Lawrence et al. 1997
Method

A four step RAND-modified Delphi procedure

Step 1: Systematic review  →  Step 2: Initial Survey  →  Step 3: Expert meeting  →  Step 4: Final survey

Hermanides et al., 2008; Schouten et al., 2005; Van den Bosch et al. 2014
Search strategy

Concept 1: Antibiotics


Concept 2: Quality Indicators


AND

• MEDLINE database (no filters; performed 03-03-2015)

• Complementary website search
Systematic review

n=620 papers retrieved by database search (MEDLINE) and screened for title and abstract

n=348 papers excluded:
- Not about ABs n=187
- Not English n=41
- Not human n=10
- Not about qualitative measures n=61
- Outpatient setting n=49

n=272 full-text papers assessed for eligibility

n=132 papers excluded:
- Not full-text available n=29
- Not about evidence, consensus or evidence based QIs n=86
- Resistant organism n=1
- Orphan Disease n=5
- Duplicates n=2
- Outpatient setting n=9

n=140 papers included

QI = Quality Indicators
Data extraction

Step 1: Systematic review

N=140 references included yielded n= 555 Quality Indicators

Complementary website search n= 72 Quality Indicators

Total identified Quality Indicators n= 627

Excluded n= 557 Quality Indicators

Quality Indicators used for consensus procedure n= 70
Step 1: Systematic review

Step 2: Initial Survey

Step 3: Expert meeting

Step 4: Final survey

n=70 potential QIs
Initial Survey

- Multidisciplinary expert panel (n=51 invited)
- SurveyMonkey®

Appraise the relevance of the following indicators for assessing the quality of antibiotic use in the inpatient setting.

1. Antibiotics should be prescribed according to local practice guidelines.

<table>
<thead>
<tr>
<th>1. Clearly not relevant</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9. Clearly relevant</th>
<th>Cannot assess</th>
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Comments

- Attachment providing scientific references
Initial Survey

- Response rate (49 %)
- Multidisciplinary expert panel (n=25)

  A. Medical Community including professional societies (n=9)

  B. Patients/Global Public Health (n=3)

  C. R&D Pharmaceutical Industry/SMEs/(Health) Economists (n=8)

  D. Payers/Policy makers/Government/Regulators (n=5)

- 15 countries
Step 1: Systematic review

Step 2: Initial Survey
- n=70 potential QIs
- n=48 selected QIs
- n=12 rejected QIs
- n=10 discussion QIs
- n=2 new QIs

Step 3: Expert meeting

Step 4: Final survey
Step 3: Expert meeting

- Address the discussion QIs & new QIs
- Multidisciplinary expert panel (n=14)
  - Schiphol airport (NL)
  - WebEx
Step 1: Systematic review

- n=70 potential QIs

Step 2: Initial Survey

- n=48 selected QIs
- n=12 rejected QIs
- n=10 discussion QIs
- n=2 new QIs

Step 3: Expert meeting

- n=53 selected QIs

Step 4: Final survey

- n=19 rejected QIs
Final Survey

- SurveyMonkey®
- Response rate 88%

Do you agree with these indicators?

IQR-1 Antibiotics should be prescribed according to local practice guidelines.

- Yes
- No
- Cannot assess

Reason(s) for disagreement
Step 1: Systematic review

n=70 potential QIs

Step 2: Initial Survey

n=48 selected QIs
n=12 rejected QIs
n=10 discussion QIs
n=2 new QIs

Step 3: Expert meeting

n=53 selected QIs

Step 4: Final survey

n=51 selected QIs
n=19 rejected QIs
n=21 rejected QIs
### Highest appraised Inpatient QIs

<table>
<thead>
<tr>
<th>QI</th>
<th>Requirement</th>
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<td>QI-9</td>
<td>An antibiotic stewardship programme (antibiotic prescribing control programme and/or antibiotic prescribing policy) should be in place at the health care facility.</td>
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</table>
| QI-17 | An antibiotic plan* should be documented in the medical record at the start of the antibiotic treatment.  

*Antibiotic plan includes: indication, name, doses, duration, route, and interval of administration. |
| QI-19 | The results of bacteriological sensitivities should be documented in the medical records. |
| QI-34 | The local guidelines should correspond to the national guideline but should be adapted based on local resistance patterns. |
| QI-49 | Allergy status should be taken into account when antibiotics are prescribed. |
Conclusion

• Evidence from literature & expert opinion

• 51 inpatient Quality Indicators

• ‘Proof of principle’ to ensure quality of antibiotic use

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