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Quantity metrics assessing antibiotic use in the outpatient setting: a global consensus procedure

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Introduction

The IMI international project DRIVE-AB (Driving re-investment in Research & Development and responsible antibiotic use) aims at developing a consensus concept of "responsible" antibiotic use. We aim to present a list of consensually validated quantity metrics (QMs) of antibiotic use in the outpatient setting.

Results

See Figure.

Conclusions/Discussion

A small set of consensually validated quantity metrics assessing the quantity of antibiotic use in the outpatient setting was obtained, enabling (inter)national comparisons. The QMs will help build an international conceptual framework on responsible antibiotic use.

**** Important suggestions/remarks made during consensus meeting***: 1) Feasibility to use DDD in numerator; 2) score for combinations of metrics; 3) denominator issue.

Materials and methods

A **RAND-modified Delphi procedure** was performed.

- First, quantity metrics for outpatient antibiotic use were identified in the literature (MEDLINE database) by a **systematic review** of the published literature (articles published until December 12, 2014). A complementary search for QMs was performed on the websites of relevant organizations and institutions active within the field of antibiotic stewardship. Two reviewers independently screened the titles and abstracts of the records. Discrepancies between the reviewers were resolved through discussion.
- Second, potential QMs were presented in **an internet-based survey** to a multidisciplinary expert panel and experts were asked to **rate their relevance for assessing the quantity of antibiotic use on a 9 point Likert scale** (clearly not relevant=score1 to clearly relevant=score9), to add comments or to propose new metrics. Based on pre-defined criteria, QMs were selected, rejected or kept for discussion of disagreement.
- Next, **a face to face consensus meeting with stakeholders** was held to discuss the set of QMs and to identify potential QMs not included in the survey.
- A second survey was sent to the expert panel for **final validation**. They were asked if they agreed with the OQM (yes-no).

December 2014 – April 2015	June 2015	30 September 2015	December 2015
Systematic review + complementary website search Articles published until December 12, 2014	**1st Delphi round** 9-point Likert scale: scoring from "not relevant=1" to "clearly relevant=9" 23 stakeholders (response rate=53%)	**Expert face to face consensus meeting*** N = 7 stakeholders (response rate=30%)	**2nd Delphi round** Agree with OQM (Yes or no) 20 stakeholders (response rate=87%)
Total N references reviewed= 597 ↓ Included references detailed review = 138 ↓ Selection of antibiotic OQMs (N=66 found) were based on metric in numerator: ▪ Defined daily doses (N=21) ▪ Packages (N=3) ▪ Prescriptions (N=13) ▪ Persons (N=4) ▪ Other metrics (N=25) ↓ **20 different OQM identified for assessment**	**20 OQMs assessed for their relevance** ↓ **- 14 OQM rejected** (Median<7) **- 6 OQM disagreement** (mean relevance score ≥8 but 3rd tertile<70%**);** **These were:** 1) **Defined Daily Doses(DDD) per defined population** 2) **Treatments/courses per defined population** 3) **Treatments/courses per physician contact** 4) **Prescriptions/defined population** 5) **Prescriptions/physician contacts** 6) *Individuals treated with antibiotics per defined population* ***+ 3 new OQM suggested:*** 7) *Average DDD per treatment course* 8) *N patients requiring second course* 9) *% patients completing AB course*	**9 OQM discussed** **Selected** **Rejected** **+ 2 new OQM suggested:** - **Seasonal variation of total antibiotic use** → **Selected** - Seasonal variation of quinolone use → **Rejected**	**7 OQMs assessed for agreement** **Selected**

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