WHO-ESGAP workshop

"How to find and overcome the barriers"

13.30-13.45

Jeroen Schouten

Date: January 25th 2017

Skopje, Macedonia

Two Types of Implementation in Antimicrobial Stewardship

- Implementation of the program itself
  - Who is on the team, who supports the team, what data are needed to keep the team alive

- Implementation of interventions to improve antibiotic use
  - Getting prescribers to optimize antibiotic use

- We often expend a lot of energy on starting and maintaining a program and may not put enough energy into thinking through the interventions (but we need to do both)

With permission, Sarah Cosgrove, 2011

Stewardship interventions

recommended professional care interventions for appropriate antibiotic use

recommended strategies to ensure that professionals adhere to these professional care interventions

WHAT?

HOW?

2 different dimensions

The WHAT?
in antibiotic stewardship

All professional care interventions / key recommendations with evidence that -by performing them- stewardship goals are reached

These interventions define appropriate antimicrobial use in individual patients e.g. regarding indication, choice of drug, dose, route or duration of treatment

The WHAT?
in antibiotic stewardship

Current evidence on hospital antimicrobial stewardship objectives: a systematic review and meta-analysis

Emelie C Schuts, Marlies E J L Hulscher, Johan W Mouton, Cees M Verduin, James W T Cohen Stuart, Hans W P M Overdiek, Paul D van der Linden, Stephanie Natsch, Cees M P M Hertogh, Tom F W Wolfs, Jeroen A Schouten, Bart Jan Kullberg, Jan M Prins

Summary

Background Antimicrobial stewardship is advocated to improve the quality of antimicrobial use. We did a systematic review and meta-analysis to assess whether antimicrobial stewardship objectives had any effects in hospitals and long-term care facilities on four predefined patients' outcomes: clinical outcomes, adverse events, costs, and bacterial resistance rates.

Methods We identified 14 stewardship objectives and did a separate systematic search for articles relating to each one in Embase, Ovid MEDLINE, and PubMed. Studies were included if they reported data on any of the four predefined outcomes in patients in whom the specific antimicrobial stewardship objective was assessed and compared the findings in patients in whom the objective was or was not met. We used a random-effects model to calculate relative risk reductions with relative risks and 95% CIs.

Findings We identified 145 unique studies with data on nine stewardship objectives. Overall, the quality of evidence was generally low and heterogeneity between studies was mostly moderate to high. For the objectives empirical therapy according to guidelines, de-escalation of therapy, switch from intravenous to oral treatment, therapeutic drug monitoring, use of a list of restricted antibiotics, and bedside consultation the overall evidence showed significant benefits for one or more of the four outcomes. Guideline-adherent empirical therapy was

The HOW?

in antibiotic stewardship

The HOW of antibiotic stewardship describes recommended strategies to ensure that professionals apply these professional care interventions in daily practice

The HOW?
in antibiotic stewardship

Interventions to improve antibiotic prescribing practices for hospital inpatients (Review)

Davey P, Brown E, Charani E, Fenelon L, Gould IM, Holmes A, Ramsay CR, Wiffen PJ, Wilcox M

THE COCHRANE COLLABORATION®

The HOW?

in antibiotic stewardship

Structural interventions (who's on the team?)

Restrictive interventions
- o prior authorisation of selected (classes of) antibiotics
- o restricted formulary

Persuasive interventions
- o education
- o feedback
- o reminders
- o computerised decision support

The HOW?
in antibiotic stewardship

89 studies/95 interventions
- ✦ Persuasive interventions
- ✦ Restrictive interventions
- ✦ Structural interventions

Overall, persuasive, restrictive and structural interventions showed positive median effect sizes

The HOW?
in antibiotic stewardship
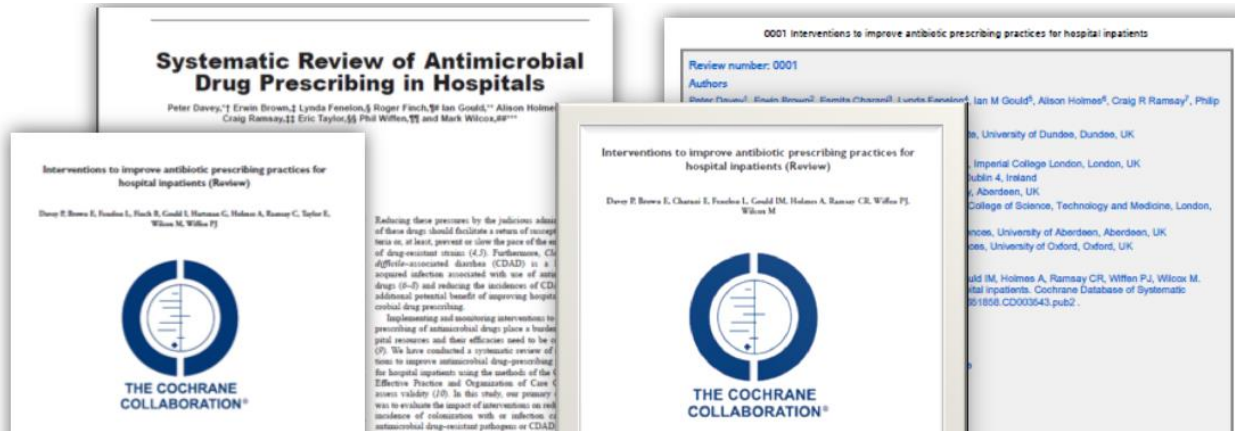
89 studies/95 interventions
- ✦ Persuasive interventions
- ✦ Restrictive interventions
- ✦ Structural interventions

Overall, persuasive, restrictive and structural interventions showed positive median effect sizes that varied by study design

Effect size of e.g. dissemination of educational materials

The HOW?

in antibiotic stewardship

The results show that interventions to reduce excessive antibiotic prescribing to hospital inpatients can reduce antimicrobial resistance or hospital-acquired infections, and interventions to increase effective prescribing can improve clinical outcome. This update provides more evidence about unintended clinical consequences of interventions and about the effect of interventions to reduce exposure of patients to antibiotics. The meta-analysis supports the use of restrictive interventions when the need is urgent, but suggests that persuasive and restrictive interventions are equally effective after six months.

...n -whether it is restrictive, persuasive or structural- can ensure that professionals app...

The HOW?

in antibiotic stewardship

Clinical Infectious Diseases

Clinical Infectious Diseases Advance Access published April 13, 2016

IDSA FEATURES

Implementing an Antibiotic Stewardship Program: Guidelines by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America

Tamar F. Barlam,[1] Sara E. Cosgrove,[2] Lilian M. Abbo,[3] Conan MacDougall,[4] Audrey N. Schuetz,[5] Edward J. Septimus,[6] Arjun Srinivasan,[7] Timothy H. Dellit,[8] Yngve T. Falck-Ytter,[9] Neil O. Fishman,[10] Cindy W. Hamilton,[11] Timothy C. Jenkins,[12] Pamela A. Lipsett,[13] Preeti N. Malani,[14] Larissa S. May,[15] Gregory J. Moran,[16] Melinda M. Neuhauser,[17] Jason G. Newland,[18] Christopher A. Ohl,[19] Matthew H. Samore,[20] Susan K. Seo,[21] and Kavita K. Trivedi[22]

Model for planning change

1.Define 'good quality care'

↓

2.Analyse current performance of this 'good quality care'

↓

3.Analyse barriers influencing the provision of 'good quality care'

↓

4.Develop a quality improvement strategy based on this diagnosis

↓

5.Develop plan, execute, evaluate this improvement strategy

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Quality of Healthcare

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Model for planning change

1. Define 'good quality care'   **DIAGNOSTIC PHASE**

2. Analyse current performance of this 'good quality care'

3.   Analyse barriers influencing the provision (or not) of 'good quality care'

4. Develop a quality improvement strategy based on this diagnosis

Develop plan, execute, evaluate this improvement strategy

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Quality of Healthcare

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Case study

You are a member of an Antibiotic Stewardship team in a large teaching hospital. A regional audit was executed in 9 similar hospitals, including a total of 400 patients submitted at an internal medicine department. Data on appropriate antibiotic use in individual patients with CAP were collected from medical charts and department performance scores were calculated (using validated quality indicators). Results from your hospital were compared with the other participating hospitals
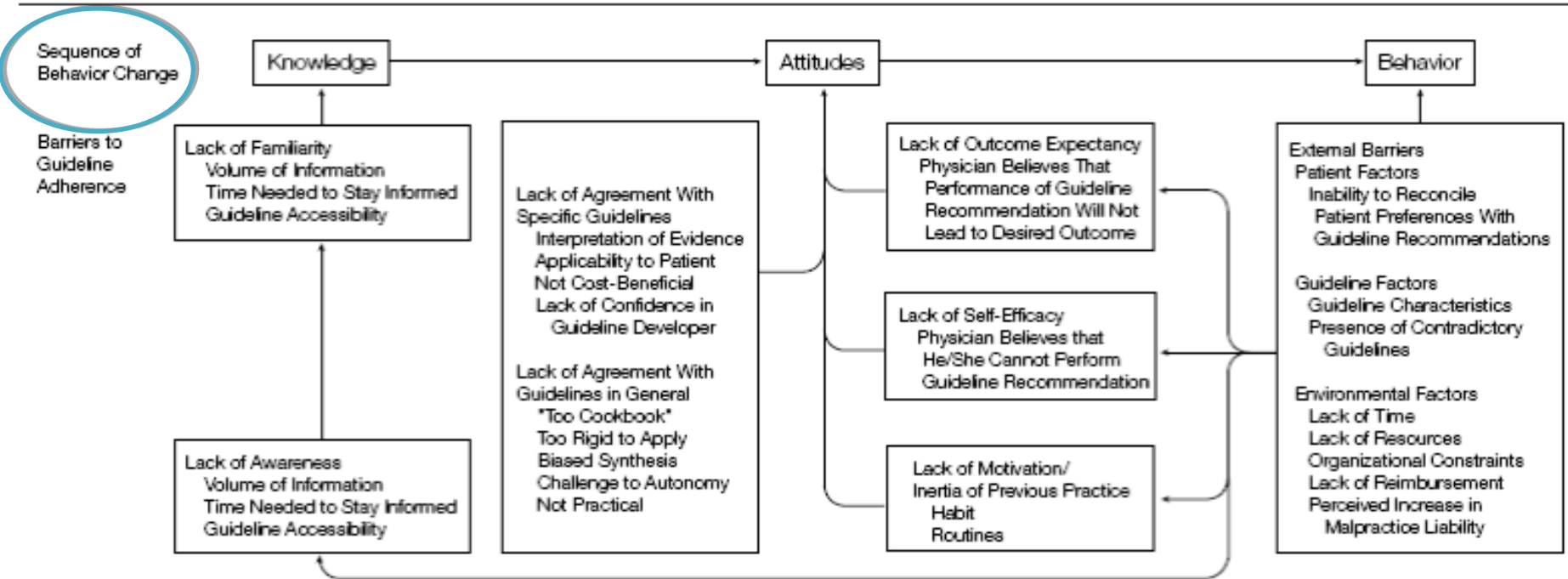
"Prescribing according to the local guideline"

Percentage of patients, admitted with community acquired pneumonia, who were administered empirical systemic antibiotic therapy according to the local guideline
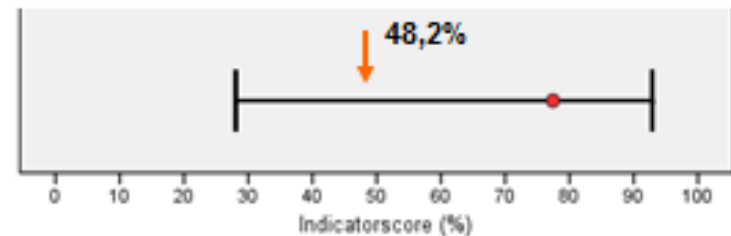
Identification and investigation of barriers

Figure. Barriers to Physician Adherence to Practice Guidelines in Relation to Behavior Change

Cabana, JAMA 1999

Flottorp et al. Implementation Science 2013:
57 barriers within 7 domains

⑩ Guideline factors

⑩ Individual health professional factors

⑩ Patient factors

⑩ Professional interactions

⑩ Incentives and resources

⑩ Capacity for organisational change

⑩ Social, political and legal factors

Identification and investigation of barriers

Barrier	Examples of specific barriers	Is there a possibility that the barrier applies to the improvement point? (Yes/no)	Is there a reason for further investigation to identify the barrier? (Yes/no; give reason)	If further investigation is needed: Proposed modifications to the question that concers the specific barrier	If further investigation is needed: Preferred method for identification of the specific barrier
1. Guideline factors					
Recommendation					
1. **Quality of the evidence**	According to the professionals in my hospital, the quality of evidence that supports the desired use of antibiotics, may not be clear or may not be judged appropriately				
2. **Strength of the recommendation**	According to the professionals in my hospital, the strength of the recommendation that defines appropriate use of antibiotics may not be clear, or the implications of a weak recommendation may not be clearly communicated				
3. **Clarity of the recommendation**	According to the professionals in my hospital, the recommendation that defines appropriate antibiotic use may be ambiguous, lack sufficient detail or be longwinded				
4. **Cultural appropriateness of the recommendation**	According to the professionals in my hospital, the definition of the desired antibiotic use may not be congruous with customs or norms in the context where they are being implemented				

Flottorp, 2013

Identification and investigation of barriers

1. Guideline factors	
Recommendation	
1. **Quality of the evidence**	According to the professionals in my hospital, ~~the quality of evidence that supports the~~ desired use of antibiotics, may not be clear or may not be judged appropriately
2. **Strength of the recommendation**	According to the professionals in my hospital, ~~the strength of the recommendation that~~ defines appropriate use of antibiotics may not be clear, or the implications of a weak recommendation may not be clearly communicated

Flottorp, 2013

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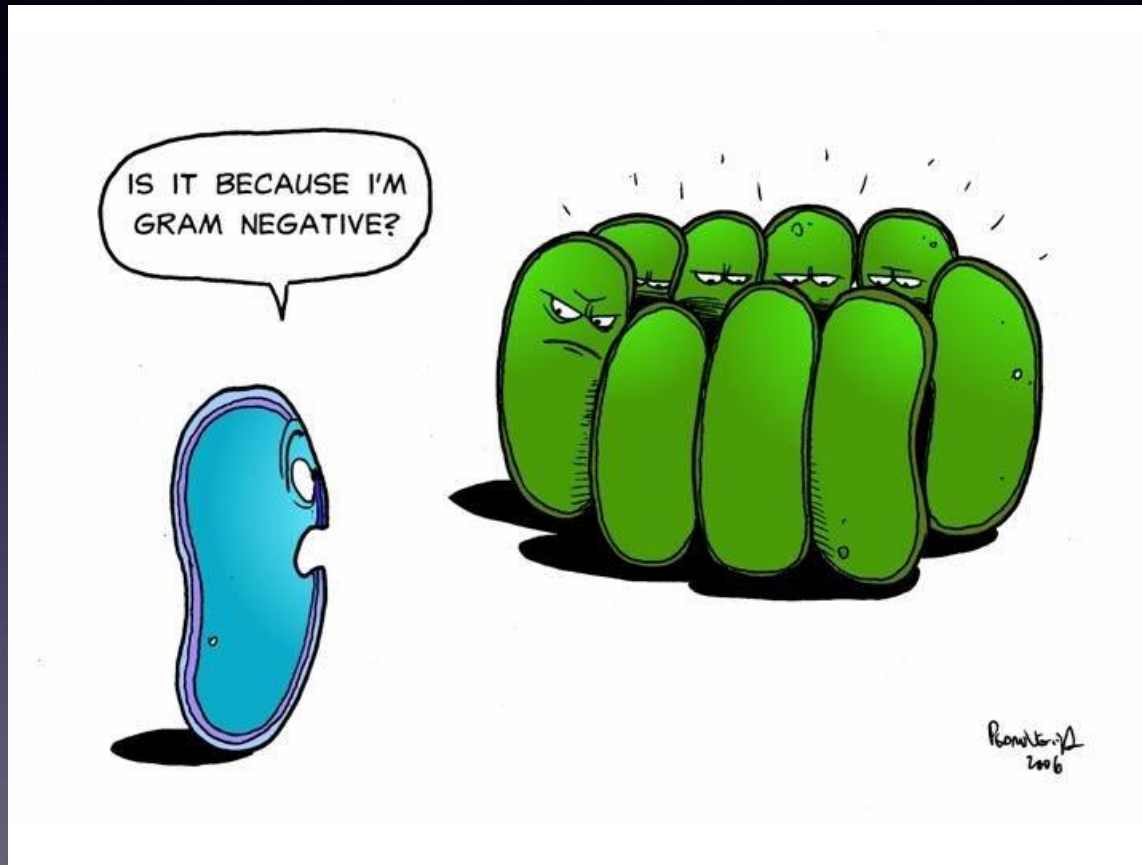| Recommendation	Internal barriers Knowledge	Internal barriers Attitude	External barriers
Prescribing an empirical antibiotic regimen adherent to the guidelines	Lack of familiarity (R/S) "I do not know what the exact content of the guideline is." Lack of insight in one's own behaviour (R/S) "I realize now that I actually never follow our hospital guideline recommendations."	Lack of outcome expectancy (R/M) "I think we are afraid of missing things, afraid to take risks with our own patients by prescribing narrow-spectrum therapy even when the guidelines recommend it." Lack of agreement with the guideline -*Interpretation of evidence* (R/S) "…recent studies show that enterobacteriaceae should be covered by aspiration pneumonia… so penicillin is just not enough…" -*Applicability to patient* (R/S) "I will deliberately deviate from this guideline for a patient with co-morbidities or one who is severely ill on admission." -*Lack of confidence in guideline developer* (S) "Microbiologists (who drew up the antibiotic guidelines) have a fundamentally different view than clinicians…" Inertia of current practice, lack of motivation (S) "I have been treating patients with this non-guideline-adherent antibiotic since medical school and it is always successful…"	Guideline factors (R/S) "The antibiotic booklet is unclear, confusing, poorly presented." Social context -*Social pressure* (R/S) "Everyone feels safe with cefuroxime (broad-spectrum betalactam antibiotic)…colleagues will not quickly criticize you for this choice." "Internists and pulmonologists make different antibiotic choices." Organizational context (S) "You know, you don't see the patient yourself at night; it is often difficult to assess from your bed whether a patient needs broad-spectrum antibiotic therapy…"
Timely initiation of antibiotic therapy	Lack of awareness or insight (S/M) "I assume that antibiotics are always administered immediately, but I am not sure." "Doctors and nurses do not realize how important timely administration of antibiotics is for outcome."	Lack of agreement with guideline -*Applicability to patient* (R/S) "This rule only applies to a patient with CAP who is severely ill." Lack of control of circumstances (R) "Once a patient is admitted to the ward, I am afraid I cannot control the schedule, I cannot guarantee timely administration."	Guideline factors -*Presence of conflicting guidelines* (M/S/N) "Nurses take recommendations of getting blood and sputum cultures *before* first administration of antibiotics very literally, which may cause several hours of delay." -*Guideline characteristics* (R/S/M/N) "There is no clear recommendation on this subject in our guideline."

Identification and investigation of barriers

Barrier	Likely impact of the barrièr[1]	Impact score*
-		
-		
-		
-		
-		
-		
-		
-		
-		
-		

[1] The impact of a barrier is the degree to which it can hinder the improvement of a selected point or outcome

*Scoring of the likely impact:
      1 = minor impact
      2 = moderate impact
      3 = major impact

Flottorp, 2013

Сега, тоа е време за работилници!

Workshop