THE ANTIMICROBIAL STEWARDSHIP TEAM – WHO AND WHAT IS ESSENTIAL?

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Summary of the presentation

• This presentation will focus on providing guidance for:
  • the selection of antimicrobial stewardship interventions to be implemented in your hospital;
  • specific plans for supporting and evaluating the programme once implemented;
  • which resources to use;
  • and what the team should look like.
Learning outcomes

• The participant will learn:
  • how to create an antimicrobial stewardship team;
  • about the main conditions needed to implemented an antimicrobial stewardship programme in his/her hospital;
  • how to best select antimicrobial stewardship interventions to be implemented in his/her hospital;
  • how to monitor the progress of his/her programme.
Articles for further reading

Disclosures

• None to declare relevant to this topic
That will be a very brief overview!

- Two-day ESGAP courses on the same topic
  - AMS course in Istanbul October 2017, and possibly Madrid 2018
  - Antibiotic prescribing course in Madrid in November 2017

- ESGAP book
Antimicrobial Stewardship: Managing Antibiotic Resistance

Join now – started 28 Sep

INTRODUCTION

Understand antibiotic resistance, and how antimicrobial stewardship can slow down or reduce it, with this free online course

WATCH THE TRAILER

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Is there an antimicrobial stewardship (AMS) team in your hospital?

1. Yes, and I am part of it
1. Yes, but I am not part of it
1. Not yet, but it is planned in the near future
1. No
2012 ESGAP International Survey

- 660 hospitals in 67 countries
- 58% of hospitals had an AMS programme in place
- 22% were planning to implement one

Howard P et al. JAC 2015, PMID: 25527272
For those of you who have an AMS programme in your hospital, which professionals are members of the AMS ‘operational’ team?

1. Pharmacist
2. Infectious Diseases (ID) specialist
3. Microbiologist
4. Nurse
5. Infection control team
2012 ESGAP International Survey

1. Pharmacist 95%

1. Infectious Diseases (ID) specialist 84%

1. Microbiologist 91%

1. Nurse 59%

1. Infection control team 65%

Howard P et al. JAC 2015, PMID: 25527272
Do you have standards regarding the human resources needed for your AMS team in your country? (e.g. 1 FTE pharmacist / 200 beds)

1. Yes
2. No
2. I don’t know
WHAT IS ANTIMICROBIAL STEWARDSHIP?
Some suggestions

• Definition of AMS: a strategy aiming at promoting responsible antibiotic use

• Implemented as an AMS programme in hospitals = a set of interventions

• WHAT to achieve: responsible antibiotic use, defined by process measures (prescription compliant with guidelines, review of therapy…)

• HOW to achieve it: set of behavioural interventions
  • At the prescriber level: audit and feedback, education…
  • At the organisation/system level: AMS team, selective reporting…

Reviews planned in CMI this year on this topic
WHICH INTERVENTIONS?
Implementing an Antibiotic Stewardship Program: Guidelines by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America


Evidence-based guidelines for implementation and measurement of antibiotic stewardship interventions in institutions populations in enforcing long term care were prepared by a multidisciplinary expert panel of the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America. The panel included clinicians and investigators representing internal medicine, emergency medicine, infectious diseases, critical care, surgery, epidemiology, pharmacology, and adult and pediatric infection diseases research. The recommendations address the best approaches for antibiotic stewardship programs to influence the optimal use of antibiotics.

Keywords: antibiotic stewardship, antibiotic programs, antibiotic implementation.

EXECUTIVE SUMMARY

Antibiotic stewardship has been defined as a consensus statement from the Infectious Diseases Society of America (IDSA), the Society for Healthcare Epidemiology of America (SHEA), and the Pediatric Infectious Diseases Society (PIDS) as "coordinated interventions designed to improve and measure the appropriate use of antimicrobial agents by promoting the selection of the optimal [antibacterial] drug regimen including duration of therapy, and dose of administration" [1]. The benefits of antibiotic stewardship include improved patient outcomes, reduced adverse events including Clostridium difficile infection (CDI), improvement in rates of antibiotic susceptibility in targeted antibiotic, and optimization of antibiotic utilization and the containment of costs. IDSA and SHEA strongly believe that antibiotic stewardship programs can be best led in infectious diseases programs with antibiotic stewardship training.

Supporting this, the IDSA/PSA Recommended for Implementing the IDSA/PSA's Expert Panel has developed a consensus statement that validates the evidence of using the IDSA/PSA guidelines on antibiotic stewardship implementation and quality evidence of using the IDSA/PSA guidelines on antibiotic stewardship implementation. A detailed description of the methods, background, and evidence summaries that support each of the recommendations can be found online in the full text of the guidelines. The purposes of this guideline, the text antibiotic, will be used instead of antimicrobial and should be considered synonymous.

RECOMMENDATIONS FOR IMPLEMENTING AN ANTIBIOTIC STEWARDSHIP PROGRAM

Interventions

1. Enact the use of Performance and Prospective Audit and Feedback Interventions for ASRs. (Guideline for Implementing an Antimicrobial Stewardship Program) Recommendation: We recommend performance and prospective audit and feedback over no such intervention, implementation, moderate-quality evidence.

Guideline for Implementing an Antimicrobial Stewardship Program. C. P. E. H. V. A. P. E. H. V. A. P. E. H. V. A.

Strategies to enhance rational use of antibiotics in hospitals: a guideline by the German Society for Infectious Diseases


Abstract

Introduction: As the increasing resistance and lack of new drug development there is a growing need for strategies to enhance rational use of antibiotics in German and Austrian hospitals. An evidence-based guideline on implementation of antibiotic stewardship (ABS) programs was developed by the German Society for Infectious Diseases in association with the following societies, associations, and institutions: German Society of Hospital Pharmacists, German Society for Hygiene and Microbiology, Pasteur Society for Chemotherapy, The Austrian Association for Infectious Diseases and Tropical Medicine, Austrian Society for Infectious Diseases and Tropical Medicine, Robert Koch Institute.

 Methods: A structured literature research was performed in the databases EMBASE, BIOSIS, MEDLINE, and The Cochrane Library from January 2006 to November 2010 with an update to April 2012. A MEDLINE and The Cochrane Library. The findings of recommendations as to their evidence in accordance with the AWMP Guidance Manual and the Guidelines for Guideline Development. The conclusion provides the guidance for the rational use of antibiotics in patients treated with anti-infective resistance and to improve the quality of care of patients with infections by minimizing clinical outcomes while maintaining therapy. Requirements for a successful implementation of ABS programmes as well as core and supplemental ABS strategies are outlined. The German version of the guidelines was published by the German Association of the Scientific Medical Societies (AWMP) in December 2013.

Keywords: Antibiotic stewardship, ABS, Antimicrobial resistance, Quality of care, C. P. E. H. V. A. P. E. H. V. A. P. E. H. V. A.
Other guidelines/guidance


• NICE (UK): https://www.nice.org.uk/guidance/qs121


• Netherlands, Spain...

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 WT Cohen Stuart, Hans W P M Overdiek, Paul D van der Linden, Stephanie Natsch, Cees M P M Hertogh, Tom FW Wolfs, Jeroen A Schouten, Bart Jan Kuijper, Jan M Prins

<table>
<thead>
<tr>
<th>Mix of WHAT to achieve and HOW to achieve it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empirical therapy according to the guidelines</td>
</tr>
<tr>
<td>Blood cultures</td>
</tr>
<tr>
<td>Cultures from the site of infection</td>
</tr>
<tr>
<td>De-escalation of therapy</td>
</tr>
<tr>
<td>Adjustment of therapy to renal function</td>
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<tr>
<td>Switch from intravenous to oral therapy</td>
</tr>
<tr>
<td>Documented antibiotic plan</td>
</tr>
<tr>
<td>Therapeutic drug monitoring</td>
</tr>
<tr>
<td>Discontinuation of antibiotic therapy if infection is not confirmed</td>
</tr>
<tr>
<td>Presence of a local antibiotic guide</td>
</tr>
<tr>
<td>Local antibiotic guide in agreement with national antibiotic guidelines</td>
</tr>
<tr>
<td>List of restricted antibiotics</td>
</tr>
<tr>
<td>Bedside consultation</td>
</tr>
<tr>
<td>Assessment of patients' adherence</td>
</tr>
</tbody>
</table>
Interventions to improve antibiotic prescribing practices for hospital inpatients (Review)


DOI: 10.1002/14651858.CD003543.pub4

www.cochranelibrary.com
How to choose the best interventions

- Guidelines / Literature
- No magic bullet
- Multifaceted strategy, usually both restrictive and persuasive
- Adapted to your specific context
- And taking into account local barriers
- Behaviour change strategy

Reviews planned in CMI this year on this topic
Pieces of advice

• Start small, with low-hanging fruits
• With friendly colleagues
• Stepwise approach
• Build on successes
• Monitor your impact and adapt
WHICH SYSTEM IN PLACE?
Essential starting point

- Institutional support
- Clear distribution of roles and responsibilities
- Close collaboration with the infection prevention and control team
HOW TO MONITOR?
Plan in advance

- List of indicators
- And monitoring system (ideally automated)
- Time to analyse the data
- Feedback to clinicians:
  - Involve them
  - Short report, easy to understand
  - Real time
Measuring the impact of an AMS programme

- Accurate definition of numerators/denominators

- Structure/activity measures

- Process measures:
  - IV-oral switch
  - Review of antibiotic prescriptions
  - Expert advice for bacteremia
  - Prescription compliant with guidelines…

- Outcome measures: influenced by many factors
  - Antibiotic use
  - Bacterial resistance
  - *C. difficile* infections
  - *S. aureus* bacteremia mortality rate
  - SSIs rate…

- Balancing measures:
  - Readmission rate for infections
How to choose the indicators?

- National/regional regulation
- Local context
- Feasibility

Examples of indicators:
WHO SHOULD BE PART OF THE TEAM?
Two levels

- AMS operational ‘core’ team:
  - daily work

- Antimicrobial committee:
  - regular meetings to validate the strategy at an institutional level
AMS guidelines

• All recommend a multidisciplinary team

• ID specialist
• Pharmacist
• Microbiologist
• + others

• Depending on the context

• Differences between countries
Clinical impact of ID specialists

- More appropriate antibiotic prescriptions
- Decrease in (unnecessary) antibiotic use
- Better clinical outcomes
- Decrease in AMR in some studies
- Impact more pronounced if the IDS is helped by a team

Pulcini C et al. CMI 2014, PMID: 25039787
Activities of the AMS team and distribution of roles

• Depends on the country

• To be discussed and defined
Available here at the ECCMID

- Practices, organization and legal responsibility in advising on antibiotic prescription: the international ESGAP AntibioLegalMap survey (Abstract #1227)
- ePoster #P1120
- Paper Poster Area: Sunday 24th April from 12:30 to 13:30
And also

- Defensive medicine in antibiotic prescribing among specialists in infectious diseases and clinical microbiology: the international ESGAP AntibioLegalMap survey
- Paper Poster Area: Sunday 24th April from 12:30 to 13:30
- Session: Antibiotic prescribing - consumer and prescriber surveys
- View ePoster #P1121
- View Abstract #1229
### Example: France

<table>
<thead>
<tr>
<th>AMS activity</th>
<th>ID specialist</th>
<th>Pharmacist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replying to clinicians’ requests</td>
<td>Commonly done</td>
<td>Sometimes done</td>
</tr>
<tr>
<td>Ward rounds</td>
<td></td>
<td>Quite uncommon</td>
</tr>
<tr>
<td>Review of antibiotic prescriptions for specific indications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education of prescribers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audit and feedback</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guidelines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antibiotic use monitoring, analysis and feedback</td>
<td>Mostly analysis and feedback</td>
<td></td>
</tr>
<tr>
<td>TDM</td>
<td></td>
<td></td>
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<tr>
<td>Drug interactions, IV-oral switch</td>
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</tr>
</tbody>
</table>

Team culture

• Variation in recommendations between AMS team members
• Undermines credibility among prescribers

Potential solutions:
• Local guidelines
• Avoid multiplicity of advisers for the same patient/ward
• Trace recommendations and check before giving another piece of advice
• Discuss inconsistencies during frequent team meetings
• Some situations may lack evidence, or diagnosis is uncertain
  => explain to clinicians

Pulcini C et al. CMI 2014, PMID: 25039787
Promote your team!

- Speak in a positive way of your AMS team colleagues to prescribers
- Clinicians are nicer if they know your face
WHICH RESOURCES?
Human resources

German guidelines

• 2 FTE / 1000 beds

= minimum staff resources for the whole team

French Task Force

• Optimal AMS team resources:

• 3.6 FTE / 1000 beds ID specialist
• 2.5 FTE / 1000 beds pharmacist
• 0.6 FTE / 1000 beds microbiologist

• Total of 6.7 FTE / 1000 beds

IT tools

• Shared form for the AMS team in the electronic medical record (EMR):
  • Activity report
  • Traceability for clinicians
  • Consistency within the team

• Computerised decision support systems
Share ideas, tools, and network

• At local level in your hospital

• At regional level, including primary care and long-term care facilities

• At national level
Toolboxes: some examples

- UK / BSAC: http://www.bsac-arc.com

- France / SPILF:
  http://www.infectiologie.com/fr/toolbox.html

- Sweden / React: https://www.reactgroup.org/toolbox/
Swedish work on containment of antibiotic resistance
Tools, methods and experiences
CONCLUSIONS
Interested in AMS... Join ESGAP!

ESGAP meeting tomorrow at 18.15
Hall N
Thanks for your attention!

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