

# EAHP Academy Seminar 2017



An ACPE application based activity

## "Antibiotic Stewardship for Beginners"

### Academy Seminar on Antibiotic Stewardship for Beginners

#### About Antimicrobial Stewardship (ABS)

- Background: High costs of antimicrobial therapy, error prone therapy, development of resistance, no new drugs for new targets, necessary for guideline, multidisciplinary team approach.
- Existing guidelines on how to implement and run Antibiotic Stewardship programs.
- Already a topic on several EAHP congresses, high number of audience.

#### The educational need

As seen during workshops and seminars at last congresses topic is of interest for members but knowledge is different (many participants with just background knowledge in the following fields:

1. How to implement an ABS program in my hospital?
2. What is the field of work of hospital pharmacists in ABS teams?
3. What are the studies the ABS pharmacist needs and what do they say?

## Links to the European Statements of Hospital pharmacy

Antibiotic Stewardship is at the interface of procurement, clinical pharmacy and patient safety. As such, it is addressed in the European Statements of Hospital Pharmacy.

According to statement 1.1, the hospital pharmacist contributes to optimise patient outcomes through working collaboratively within multidisciplinary teams. Statements 1.4 and 1.5 stipulate that the hospital pharmacist has overall responsibility for the safe, effective and optimal use of medicines, and is a supervisor in all steps of all medicine use processes. In statement 2.2 this supervision is elevated to a leadership in developing, monitoring, reviewing and improving medicine use processes.

According to statement 2.7, hospital pharmacists should be involved in the development of policies regarding the use of medicines brought into the hospital by patients.

In the clinical setting, statements 4.1 through 4.6 address the task of prospectively influencing collaborative, multidisciplinary therapeutic decision-making. Hospital pharmacists should play a full part in decision making including advising, implementing and monitoring medication changes in full partnership with patients, carers and other health care professionals. Review should take place prior to the supply and administration of medicines by having access to the patients' health record. Clinical interventions should be documented in the patients' health record and analysed to inform quality improvement interventions. Assessment of the appropriateness of all patients' medicines, including herbal and dietary supplements is also found among the duties of hospital pharmacy, as well as to supervise transfer of information about medicines whenever patients move between and within healthcare settings, to offer information about clinical management options, and especially medicines, in terms they can understand.

In terms of patient safety and quality assurance, a wide area of tasks comprises supervision of the "seven rights", detection of errors and identification of priorities for improvement, reporting of adverse drug reactions and medication errors to regional or national pharmacovigilance programmes or patient safety programmes, disseminating evidence-based approaches to error reduction including computerised decision support, identification of high-risk medicines, elimination of transcription steps between the original prescription and the medicines administration record, assurance of accurate recording of all allergy and other relevant medicine-related information in the patient's health record, access to the information needed for safe medicines use, according to statements 5.1 through 5.2 and 5.4 through 5.9. Regarding especially the antibiotic therapy the pharmacist has to be a member of ABS-teams. The task of those teams and so also the task of hospital/clinical pharmacists is written down in existing guidelines like IDSA or others.

As a result, the hospital pharmacy contribution to Antibiotic Stewardship consists of:

- policy and procedure development;
- implementation and performance improvement;
- training and competency assurance;
- information systems development; and,
- advocacy.

In addition to the European Statements of Hospital Pharmacy, the need is also arising from

hospital pharmacy practice, since the topic "Antibiotic Stewardship" has been proposed in the Cyber Café Needs Assessment Survey at the EAHP Congress 2014 at Barcelona and from the EAHP Scientific Committee's experience when evaluating submitted abstracts.

## **Assessment of Learning Success**

To evaluate the learning success as requested by ACPE and as defined by teaching goals and learning objectives, a Survey Monkey® driven online questionnaire will be developed. This form can be completed online subsequent to the Academy Camp. The link will be communicated to the delegates. A participation certificate will be delivered by link after anonymous submission of the completed questionnaire.

## **Contents and Learning Objectives of the lectures**

The Academy Seminar and Workshops show a main track from a general overview to national clinical implications. The main focus is put and centred on the patient and on processes.

To clarify terms and obtain a commonality of understanding, some definitions might be outlined as far as they are needed to exclude misunderstandings. However, a broad discussion and philosophy on the terms is excluded.

Kind reminder: The second slide of each presentation will give the disclosure of conflicts of interest. The last slides of presentation should give a summary.

To evaluate the learning success as requested by ACPE and as defined by teaching goals and learning objectives, a Survey Monkey® driven online questionnaire will be developed. This form can be completed online right after the Academy Camp. The link will be communicated to the delegates. A participation certificate will be delivered by online delivery after that the assessment questionnaire has been completed for each one of the Seminar blocks and submitted anonymously.

### **What is the evidence of Antibiotic Stewardship?**

Prof Dr Martin Hug <sup>[1]</sup>, University of Freiburg, Germany

#### **Abstract**

The Infectious Diseases Society of America defines 'Antimicrobial Stewardship' as "coordinated interventions designed to improve and measure the appropriate use of antimicrobials". In order to achieve this goal, institutional programs should be developed by an interdisciplinary group of experts. Most guidelines recommend that an infectious diseases physician and a clinical pharmacist should be core members of an antibiotic/antimicrobial stewardship (ABS) team and that these persons should be compensated for their efforts. While the clinical benefit of the involvement of such experts on patient care is undisputed, robust criteria to assess the economical impact of ABS programs are yet to be defined. To this end only studies with limited quality are available to demonstrate, that ABS teams are in fact valuable assets for their respective health care institution. This may be attributable to improper selection of outcome measures and insufficient data collection. Due to the fact, that costs of antimicrobial drugs make only a small fraction of the total health care budget, savings on drug

expenses are unlikely to justify the implementation of an ABS team. However, other parameters such as local resistance patterns, adverse events, duration and severity of symptoms, requirement of lab tests and last but not least patient satisfaction can be more suitable to demonstrate the overall cost effectiveness of an ABS team. If a healthcare institution considers implementation of ABS, extensive data collection prior to the selection of the team members can be recommended. Often simple point prevalence studies using a set of predefined quality indicators are sufficient to determine the status quo of antimicrobial treatment in the respective setting. If electronic medical records are available, the scope of the analysis can be broadened. After formation of the ABS team, the members should define a ranking order and size of planned interventions with specific assignments. Finally sufficient time should be allowed to put the team in action until the effects can be determined. It is apparent, that the clinical pharmacist can play a major role in the planning and conduction of such measures. However, in order to adequately perform this task, pharmacists require proper training on all aspects of ABS.

### **Learning objectives**

At the end of this session, participants will be able:

- ? to define how ABS program are to be organized;
- ? to give an overview on the scope and frequency of ABS programs worldwide;
- ? to explain the current evidence of the clinical and economical impact of ABS teams;
- ? to present the tools and objectives to promote ABS programs.

### **Link to Hospital Pharmacy Statements**

The following chapters of the Hospital Pharmacy Statements are applied within this topic:

Section 1: 1.6, 1.7;

Section 2: 2.3;

Section 5: 5.2.

## **Consumption surveillance methods: How to collect and report data, how to avoid common pitfalls**

Dr Matthias Fellhauer<sup>[2]</sup>, Schwarzwald-Baar Klinikum, Germany

### **Abstract**

Increasing antimicrobial resistance, the lack of new antibiotic drug classes and the suboptimal use of antimicrobials in many cases are the main drivers for antibiotic stewardship programs (ASP). When ASP are implemented in hospitals, data on antimicrobial consumption are an essential requirement, because they trigger interventions to improve quality and patient outcome. These data are kind of a "speed indicator" for antimicrobial therapy. The main methodological aspects of antimicrobial consumption surveillance and also the common pitfalls will be presented in the lecture.

### **Learning objectives**

At the end of this session, participants will be able:

- ? to explain that surveillance of antimicrobial consumption is an essential requirement for antibiotic stewardship programs;
- ? to explain how data can be collected and reported;
- ? to demonstrate the main pitfalls in data management;
- ? to implement a system for collecting data on antimicrobial consumption;
- ? to get the results they need for further interpretation;

? to avoid common pitfalls when dealing with data on antimicrobial consumption.

### **Link to Hospital Pharmacy Statements**

The following chapters of the Hospital Pharmacy Statements are applied within this topic:

Section 1: 1.6, 1.7;

Section 2: 2.3;

Section 5: 5.2.

### **From antibiotic therapy to peri-surgical antibiotic prophylaxis: measures/interventions to influence antibiotic use and consumption**

Dr Florence Lieutier-Colas<sup>[3]</sup>, Archet Hospital, University Hospital of Nice, France

#### **Abstract**

Antimicrobial resistance among common bacterial pathogens is increasing worldwide, with inappropriate and excessive use of antimicrobials attributed as a cause. Surveillance of hospital antimicrobial consumption and evaluation of antimicrobial stewardship programmes, is considered to be of key importance in controlling bacterial resistance. An antibiotic stewardship program was implemented in our teaching hospital in 1999, strengthened in 2005. I am responsible of our local Antimicrobial Stewardship since 2005 as a pharmacist, and with an infectious diseases specialist, and our multidisciplinary actions (guidelines, audits, surveillance of antibiotic consumption, training) allows controlling antibiotic use in our hospital. Some examples of actions will be presented for antibiotic therapy, but also for peri-surgical antibiotic prophylaxis (new organization since 2005, audit in 2006, and developed in all our surgery rooms since 2013). A similar program has also been developed for the appropriate use of antifungals. Since 2013, I got involved in regional actions as a member of the regional infectiology network, as the newspaper editor of a semestrial paper on infectiology since 2014, and with a pharmacists regional workgroup created in 2014. Our goals are to share tools and actions at a regional scale. I participate since 2008 as member of the national workgroup on research and monitoring of antibiotic consumptions, and as a member of the workgroup "Regional version of the National Antibiotic Alert Plan" for the National Antibiotic Plan (2008/2011 and 2011/2016). Develop training, evaluation tools and research at different scale (local, regional, national, European) will further optimize our actions, results, and the management of our patients.

#### **Learning objectives**

At the end of this session, participants will be able:

? to list different interventions to influence antibiotic consumption;

? to explain how to build up networks on a regional level;

? to explain how peri-OP-prophylaxis regimes can be influenced by the ABS team.

### **Link to Hospital Pharmacy Statements**

The following chapters of the Hospital Pharmacy Statements are applied within this topic:

Section 1: 1.6, 1.7;

Section 2: 2.3;

Section 5: 5.2.

## Practical application of antibiotic use data

Prof Dr Uga Dumpis<sup>[4]</sup>, University of Latvia, Latvia

### Abstract

The antimicrobial stewardship (AS) interventions are shown to be effective in increasing compliance and reducing duration of therapy, as well as even mortality for selected interventions. Interventions in selected departments are usually preferred with careful monitoring of change, analysis of data, costs and subsequent feedback to the staff. General antibiotic consumption data should be used only for data collection but will not provide sufficient information about the prescribing pattern, especially if children and patients with renal failure are included. Point prevalence protocols can be very useful for identification of main targets for intervention aiming for improvement of compliance with the local guidelines or restriction of certain groups of antibiotics. Simple three point questionnaire audit could be used for evaluation of surgical perioperative prophylaxis protocol. Therefore methodology of assessment of each intervention should be carefully planned ahead.

What makes AS in hospitals very complicated is the large number of physicians of various specialties and educational backgrounds that prescribe antimicrobials. Structural, persuasive and restrictive strategies were all shown to be effective. Combination of different strategies can be employed depending on the problem that should be solved and level of compliance in the staff of the department. Whatever the chosen strategy is, it is essential to provide good microbiological results in the timely manner. Simplified sensitivity report can be negotiated with laboratory to simplify decision making. Various software adjustments are very helpful and should be considered at the start of AS implementation program.

### Learning objectives

At the end of this session, participants will be able:

- ? to describe the main implementation strategies for antimicrobial stewardship program;
- ? to choose the relevant approach for the selected stewardship goal with understanding the barriers and facilitators for implementation;
- ? to share practical experience with AS interventions and feedback to the staff;
- ? to identify high risk departments with the problems of antimicrobial prescribing;
- ? to select relevant strategies for certain antimicrobial stewardship program goals;
- ? to use different data collection methods to monitor and feedback the results of antimicrobial stewardship interventions.

### Link to Hospital Pharmacy Statements

The following chapters of the Hospital Pharmacy Statements are applied within this topic:

Section 1: 1.6, 1.7;

Section 2: 2.3;

Section 5: 5.2.

### How to implement Antibiotic Stewardship without having the resources for that?

Dr Torsten Hoppe-Tichy<sup>[5]</sup>, University Hospital of Heidelberg, Germany. EAHP Member of the Scientific Committee

### Abstract

In the IDSA-Guidelines to Antibiotic Stewardship the consequences of implementation of an ABS in terms of staffing but also e.g. drug consumption analyses are clearly defined. But does

this mean that one cannot implement ABS when the hospital don't have the financial resources for this? In this presentation it will be shown that even with not having the resources or additional staff for this task one can start with building up an ABS for the hospital.

### **Learning objectives**

At the end of this session, participants will be able:

? to show how to implement an ABS;

? to list possible strategies for getting staff for an ABS team on board without "creating" new positions;

? to explain what measures and general conditions are important for an ABS team.

### **Link to Hospital Pharmacy Statements**

The following chapters of the Hospital Pharmacy Statements are applied within this topic:

Section 1: 1.3, 1.6, 1.7;

Section 2: 2.3;

Section 5: 5.2.

### **First ABS studies in your hospital: How to do it, what to learn from it?**

Dr Kornelia Chrapkova<sup>[6]</sup>, Institute for Clinical and Experimental Medicine, Prague, Czech Republic. EAHP  
Member of the Scientific Committee

### **Abstract**

A growing body of evidence demonstrates that hospital based programs dedicated to improving antibiotic use, commonly referred to as "Antibiotic Stewardship Programs (ASPs)", can both optimize the treatment of infections and reduce adverse events associated with antibiotic use.

Although the available evidence base suggests that antimicrobial stewardship programmes should be introduced, with sufficient trained staff and funding, as widely as possible there are still many hospitals in Europe where the ABS is not a requirement. There is no single template for a program to optimize antibiotic prescribing in hospitals and tailored multidisciplinary approaches must be used with flexibility in implementation.

When starting with the implementation of ABS in the hospital, interventions should be based on the needs of the facility as well as the availability of the resources and expertise. Stewardship programs should be careful not to implement too many interventions at once.

Measuring antibiotic use process is critical starting point for selecting specific opportunities for improvement. Are policies and guidelines being followed as expected? That's one of the core questions to be asked when evaluating the antimicrobial use.

However, what shouldn't be forgotten is the assessment of the local guidelines. Poor quality guideline as well as lack of a guidance can be the main reason for non-compliance and wrong antimicrobial use. Has the multidisciplinary approach when creating guidelines been used, is the guideline practical, tailored to the local needs, in accordance with the national recommendations and up to date? Identification of the cause of non-adherence is a useful tool for a successful implementation of new interventions.

To learn whether the right need in the institution was met and right approach used the impact

of the Antimicrobial stewardship should be assessed by appropriate outcomes measures and metrics.

### **Learning objectives**

At the end of this session, participants will be able:

- ? to show how to identify the need for implementing policy for optimal antibiotic use;
- ? to explain potential reasons for wrong antimicrobial prescribing;
- ? to present interventions to improve antibiotic use;
- ? to present key points for implementing policies and interventions to improve antimicrobial use;
- ? to list appropriate measures and metrics to study impact of the Antimicrobial Stewardship;

### **Link to Hospital Pharmacy Statements**

The following chapters of the Hospital Pharmacy Statements are applied within this topic:

Section 1: 1.3, 1.6, 1.7;

Section 2: 2.3;

Section 5: 5.2.

## **Using a quality improvement approach to optimise antimicrobial prescribing**

Dr Jacqueline Sneddon [7], Healthcare Improvement Scotland, Glasgow, Scotland, UK

### **Abstract**

Quality improvement methodologies such as The Model for Improvement, Lean and Six Sigma are becoming widely used in healthcare to optimise delivery of care and ensure patient safety. These improvement approaches can be applied to antimicrobial use as part of a stewardship programme. While measuring antimicrobial consumption is extremely useful it does not provide sufficient qualitative information about prescribing to identify where changes can be made to improve clinical practice. Applying improvement methodology through use of small scale data collection at individual ward level can be used to inform improvements in practice through changing behaviours of clinical staff. Using the Model for Improvement and Plan Do Study Act (PDSA) cycles to support various interventions based on audit of clinical practice can be easily achieved in any setting without the need for complex IT systems. Prospective audit and feedback, quality indicators with targets and behaviour change interventions have been used to. These involve collecting, analysing and most importantly sharing data to drive improvements in prescribing behaviours, increase compliance with local policies and ultimately optimise antibiotic therapy at individual patient level. Engaging clinical teams in such interventions gives ownership and facilitates improvement as clinicians can review their own performance. Open sharing of data with colleagues, patients and the public is also useful to stimulate improvement.

### **Learning objectives**

At the end of this session, participants will be able:

- ? to describe the simple interventions that can improve antimicrobial use within a ward or hospital;
- ? to understand the improvement methodologies that can support stewardship;
- ? to describe the types of measures that can be used;
- ? to outline methods of feeding back data to drive improvements in practice.

### **Link to Hospital Pharmacy Statements**



The following chapters of the Hospital Pharmacy Statements are applied within this topic:

Section 1: 1.3, 1.6, 1.7;

Section 2: 2.3;

Section 5: 5.2.

## **How to engage and educate healthcare professionals and the public in antimicrobial stewardship**

Dr Jacqueline Sneddon <sup>[7]</sup>, Healthcare Improvement Scotland, Glasgow, Scotland, UK

### **Abstract**

Education is an integral part of any antimicrobial stewardship programme. The recently updated Cochrane review of interventions to improve antibiotic prescribing practices for hospital inpatients confirmed that 'enablement' interventions which include education had a positive effect on patient outcomes. However, access to and engagement with education to support stewardship varies greatly between countries and prescribers often receive insufficient training at undergraduate level to equip them for clinical practice. Educational resources have been developed in several countries along with prescribing competencies to address this issue. Education may involve face-to-face teaching or on-line learning individually or through facilitated e-learning such as massive open on-line courses (MOOCs). Engagement of healthcare staff is essential to effective education and approaches to suit different types of learners are important. Professional networks and use of local 'champions' can help with engagement. Increasingly the use of social media is proving successful in engaging staff in dialogue about stewardship and also in promoting education resources. Equally important in the prudent use of antimicrobials to support stewardship is education of patients and the public to increase awareness of appropriate antibiotic use and the role of self-management in minor infections. National campaigns have been used in several countries across Europe to support European Antibiotic Awareness Day (EAAD), now part of World Antibiotic Awareness Week. The success of these campaigns is variable in terms of increasing public knowledge and understanding and they can be costly if media such as TV adverts are used. The Antibiotic Guardian pledge campaign led by Public Health England has been successful in engaging both healthcare staff and the public to sign up and take personal action to protect antibiotics.

### **Learning objectives**

At the end of this session, participants will be able:

- ? to describe the education resources available in various countries;
- ? to understand the different types of education and how it may engage learners;
- ? to understand the role of networks and champions in supporting education;
- ? to outline the national campaigns for EAAD;
- ? to describe how patients and the public can support stewardship.

### **Link to Hospital Pharmacy Statements**

The following chapters of the Hospital Pharmacy Statements are applied within this topic:

Section 1: 1.3, 1.6, 1.7;

Section 2: 2.3;

Section 5: 5.2.

## **Contents and Learning Objectives of the workshops**

### **Interactive parts**

? Hospital pharmacists ? how can they implement antimicrobial stewardship to ensure rationale use of antimicrobials?

? Case studies in antibiotic prescribing: How can hospital pharmacists ensure rational antibiotic therapy in practice?

### **Abstract**

Workshop 1: The World Health Organization (WHO) defined the appropriate use of antimicrobials as ".....the cost-effective use of antimicrobials which maximize clinical therapeutic effect while minimizing both drug-related toxicity and the development of antimicrobial resistance."

Worldwide there is increasing concern linked to the inappropriate use of antimicrobials. This may lead to negative outcomes in patient care, both clinical and economic. Consequently, WHO and the European Union have issued a number of documents making reference to the important role of the hospital pharmacist. A shift is seen from a "policing" and "gate-keeper" role when monitoring and auditing adherence to policies, to a more specialist and advisory role.

Numerous antimicrobials stewardship programmes have been put in place to promote the rationale use of antimicrobials. The hospital pharmacist, whether or not an antimicrobial specialist pharmacist, may play a key role in the successful development of such programmes. The workshop will stimulate discussion aimed at providing answers to the following question: What strategies may be implemented by the hospital pharmacist to promote rational use of antimicrobials?

### **Workshop 2:**

Antimicrobial resistance and the threat this brings with it have long been recognized. Inherent antimicrobial resistance existed even before antimicrobials were introduced into medicine. Reports indicate that more than 25% of Staph. aureus infections in Europe are caused by MRSA, with most of these isolates being multi-drug resistant. The European Union has voiced its concern about this alarming increase in antibiotic resistance and has launched a surveillance programme, the European Antimicrobial Resistance Surveillance System (EARSS). A recent report summarizing trends has indicated that there continues to be a loss of antimicrobial effectiveness which does not seem to have slowed down, with resistance and a reduction in antimicrobial effectiveness reported both in community and in hospital-based care.

Optimal use of antimicrobials is one of the essential elements of antimicrobial stewardship to ensure that the activity of newer antimicrobials, such as daptomycin and tigecycline are preserved. The hospital pharmacist is more likely to encounter multi-drug resistant organisms and should therefore be familiar with indications and spectrum of activity of antimicrobials, including newer ones. It is a role for all hospital pharmacists, whatever their experience or area of practice, to ensure the rational prescribing of antimicrobials.

This workshop will be interactive. Different approaches will be taken during the session including group discussion on cases provided, together with wider participant discussion and input from pharmacist hospital and academic specialists with varied backgrounds and countries of practice.

### **Learning objectives**

At the end of this sessions, participants will be able:

? to understand the importance of rational antimicrobial treatment and the implications associated with misuse of antimicrobials;  
? to explore the different ways in which antimicrobial treatment may be optimized by hospital pharmacists;  
? to ensure adequate pharmaceutical care is delivered to patients on antimicrobials by implementation of appropriate strategies;  
? to provide case studies describing potentially challenging case scenarios that a hospital pharmacist may encounter;  
? to encourage discussion among workshop participants on choosing appropriate antibiotics;  
? to help participants put into practice and apply background knowledge relating to antibiotics;  
? to gain different perspectives on managing cases that they may encounter in practice;  
? to have a greater understanding and awareness of potential uses of antibiotics and different options for managing challenging cases.

### **Link to Hospital Pharmacy Statements**

The following chapters of the Hospital Pharmacy Statements are applied within this topic:

Section 1: 1.3, 1.6, 1.7;

Section 2: 2.3;

Section 5: 5.2.

Last update: 2 August 2017

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### **Links**

[1] <http://www.eahp.eu/content/prof-dr-martin-j-hug#overlay-context=user-groups>

[2] <http://www.eahp.eu/content/dr-matthias-felhauer#overlay-context=content/dr-kornelia-chrapkova>

[3] <http://www.eahp.eu/content/dr-florence-lieutier-colas#overlay-context=content/dr-florence-leutier-colas>

[4] <http://www.eahp.eu/content/prof-dr-uga-dumpis#overlay-context=>

[5] <http://www.eahp.eu/content/dr-torsten-hoppe-tichy>

[6] <http://www.eahp.eu/content/dr-kornelia-chrapkova#overlay-context=content/dr-jacqueline-sneddon>

[7] <http://www.eahp.eu/content/dr-jacqueline-sneddon#overlay-context=content/dr-florence-leutier-colas>