

## **Antimicrobial Stewardship: Its Significance and Impact**

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## **Faculty**

**Albert White, Jr., MD, FACP  
Area 3 Health Officer  
Alabama Department of Public Health  
Medical Director, Hospital Epidemiology  
DCH Regional Medical Center  
Tuscaloosa, AL**

## **Objectives**

- **Introduction of Antibiotic Stewardship**
- **Mandate from CMS for Health Care Facilities**
- **Activities Associated with Antibiotic Stewardship**
- **Benefits of Antibiotic Stewardship Programs**

## **What Is Antimicrobial Stewardship?**

- **Broad definition: Any activity which improves the use of antimicrobials**
  - **Antimicrobial selection, dosing, route, and duration**
- **Antimicrobial Stewardship (AS) Goals**
  - **Optimize clinical outcomes**

## **What Is Antimicrobial Stewardship?**

- **Minimize unintended impact of antimicrobial use**
  - **Slow development of resistance**
  - **Minimize selection of pathogenic organisms**
  - **Minimize toxicity**
- **Decrease healthcare costs (secondary goal)**

## **What is Needed for a Successful Program?**

- **Institutional philosophy that supports program**
- **Commitment of leadership of institution**
- **An infrastructure to support ASP**

### **Key Elements of ASP**

- A physician and pharmacist
- Microbiology lab
- Pharmacy and Therapeutics (P and T) committee
- Medical leadership
- Infection Preventionists
- Information Technology (IT) support to obtain access to antibiotic use and microbiology data

### **ASP Infrastructure**

- Identify ASP physician and pharmacist champions
- Engage senior leadership member to support ASP team and advocate for resources
- Conduct baseline facility assessment
- Use information collected to develop ASP goals and strategies

### **ASP Infrastructure**

- Be able to communicate goals and strategies to key stakeholders and give feedback to staff regularly

### **ASP Core Strategies**

- Review pharmacy formulary and contracts annually
- Identify cost associated with each antimicrobial
- Assess for duplicative agents and develop process to remove or streamline

### **ASP Core Strategies**

- Define criteria for use for certain agents (restricted)
- Be sure that agents available on formulary align with antimicrobial susceptibility testing from micro lab

### **ASP Expanded Strategies**

- How to order restricted agents
- Process to communicate and reinforce formulary
- Process to audit use of certain agents
- Process to review contracts to reduce costs

### **ASP Expanded Strategies**

- Communicate comparative antibiotic cost per day information
- Develop drug utilization evaluation (DUE)
- Develop a process to communicate patient-specific ASP team recommendations to prescribers

### **ASP Expanded Strategies**

- Track adherence of ASP team recommendations for patient-specific antibiotic treatment
- Monitor resistance to agents at your facility
- Utilize antibiogram (facility or unit specific if possible) and share information and updates with prescribers

### **ASP Expanded Strategies**

- Many more strategies exist

### **DCH RMC ASP**

- Started January 2009
- Led by Dr. White with support from Stephen Eure, clinical pharmacist
  - Also supported by two additional clinical pharmacists who incorporate ASP into their daily patient reviews

### **DCH RMC ASP**

- Additional support from pharmacy practice residents
- Multidisciplinary involvement includes microbiologist, infection preventionist, information technology

### **DCH RMC ASP**

- Administrative support: Bryan Kindred, Bill Cassels, Dr. David Rice, Dr. Ken Aldridge
- Semiannual reports are delivered to P and T and infection prevention committees

### ASP Activities Predating the Formal ASP Program at DCH

- Medical staff approved, pharmacist-run programs which fall into the antimicrobial stewardship category
- IV to PO conversion program: More than 1,400 automatic IV to PO antibiotic conversions per year

### ASP Activities Predating the Formal ASP Program at DCH

- Pharmacokinetics Program: More than 2,500 pharmacokinetics consults per year (vancomycin, aminoglycoside pharmacy-run dosing)
  - Efficacy optimized, toxicity minimized

### ASP Activities Predating the Formal ASP Program at DCH

- Automatic Renal Dosing Program: More than 5,000 dosing adjustments based on renal function per year

### Early ASP goals (2009-2011): Minimize Development of Drug-Resistant Pathogens

- Decrease unnecessary double coverage of anaerobic bacteria
- Decrease duration of antimicrobial therapy when appropriate
- Encourage timely narrowing of antimicrobial coverage based on microbiology results and patient response

### Early ASP goals (2009-2011): Minimize Development of Drug-Resistant Pathogens

- Reserve newer-generation antimicrobials for known or highly suspected drug-resistant pathogens

### Initial DCH ASP Activities

- Education will occur on a physician-specific basis via communication forms in the chart and verbal conversations with individual physicians

### **Initial DCH ASP Activities**

- **Evaluation of combination therapy will occur daily**
  - Specifically, patients on three or more antimicrobials will be evaluated
  - When appropriate, recommendations for simplifying therapy will be made

### **Initial DCH ASP Activities**

- **Streamlining or de-escalation of therapy will be recommended when appropriate**
- **Dose optimization will be recommended when appropriate**
  - These recommendations may include increases or decreases in the daily antimicrobial dose

### **Initial DCH ASP Activities**

- **Targeted evaluation of certain antimicrobials will occur**
  - Targeted antimicrobials may include those with high cost or high propensity to cause adverse events (e.g., C. diff colitis)
  - Alternatives which are more cost-effective or carry less risk of adverse effect may be recommended