

# ANTIBIOTIC STEWARDSHIP PROGRAM (ASP) CASE STUDY: LARGE MEDICAL CENTER

## Mississippi Baptist Medical Center

Location:

**Jackson, Mississippi**

Bed Size:

**541**

Key Contact (name/email):

**Tripp Dixon tdixon@mbhs.org**

Duration of organized ASP

**Since 2011**

### Organization and governance of ASP:

#### > Leader or co-leaders (names, roles):

- Tripp Dixon, PharmD
- Mike Byers, MD, Infectious Disease Specialist

#### > Members of task force or committee (no names, just roles):

- Pharmacists:
  - Tripp Dixon, PharmD, Clinical Pharmacy Specialist
  - Matt Chambers, PharmD Clinical Pharmacy Specialist
  - Phil Ayers, PharmD Chief, Clinical Pharmacy Services
- Clinical Microbiologist:
  - Gloria Lockett
- Infection Control Coordinators:
  - Susan Taylor, MS, MT, SM, CIC
  - Erica Payne, RN
- Information Systems Specialist:
  - Jerry Smith, RPh Pharmacy Applications Manager
  - Baron Matthews Interface Specialist

#### > Governance:

- Meets quarterly
- Reports to P&T quarterly, which filters to medical executives and the board
- Updates to quality, infection prevention, and surgical committees

### List all strategies of ASP implemented with key details:

#### **Broad Interventions**

- a. Limited antibiotic restriction to specific indication(s) and specialty
- b. Seven day limit on antibiotics ordered without a specified stop date
- c. Annual antibiotic susceptibility panel review
- d. Antibiotic review occurs on daily interprofessional rounds
- e. Daily antibiotic surveillance alerts available for review:
  - i. De-escalation opportunities
  - ii. Duplicate antibiotic coverage alerts
  - iii. Antimicrobial — antibiotic mismatch reports
  - iv. Antimicrobial usage audits

### Pharmacy-Driven Interventions

- a. Automatic intravenous to oral antibiotic policy
- b. Automatic renal dose adjustment policy
- c. Prospective audit and feedback of organism and antibiotic mismatches and duplications

### Diagnosis and Infection Specific Interventions

- a. Disease Specific Orders Sets
  - i. Healthcare Associated Pneumonia
  - ii. Community Acquired Pneumonia
  - iii. Sepsis
  - iv. Neutropenic Patients

### Stewardship Metrics

- a. Infection Control
  - i. Healthcare associated infections
    - 1. Central line associated infections
    - 2. Catheter associated infections
  - ii. C. difficile rates
- b. Antibiotic use: Days of Therapy/1000 patient days
- c. Annual Antibigram

### Reporting

- a. Antibigram is published on the intranet and is accessible to all staff
- b. Metrics being tracked are shared with relevant staff and committees
- c. Direct, personalized communication with specific prescribers occurs when appropriate

### Patient Education

- a. Indications for and adverse effects of antibiotics are explained to the patient and, when appropriate, family members
- b. The Center for Disease Control and Prevention's Get Smart document, *Viruses or Bacteria — What's got you sick?* is posted in common areas and distributed to patients and families on admission
- c. Patients and relevant family members are educated on isolation precautions as needed

### Staff and Prescriber Education

- a. Antimicrobial Stewardship centered lectures routinely made available to prescribers
- b. Antibiotic initiatives and facility specific metrics are communicated via internal electronic and print media when appropriate
- c. Direct, personalized education with specific prescribers occurs when appropriate

## TIMELINE FOR IMPLEMENTATION:

Formulary restriction and the production of an annual antibiogram have been in place for several years. The formal Antimicrobial Stewardship Team, initiated in 2011, took ownership of reviewing current restrictions, antimicrobial containing order sets, the annual antibiogram, susceptibility panels and a variety of other initiatives. These are updated on an ongoing basis (i.e. as new antimicrobials are added to formulary and new evidence based medicine is published).

In the first three years and in addition to the above activities, automatic IV to PO protocol, renal dose adjustment protocol, requirements for antimicrobial reordering, and a software surveillance system were implemented.

In the last three years, daily rounds throughout the hospital were started and antibiotic review was incorporated into those rounds. The primary metric of DOT/1000 patient days was chosen to evaluate antimicrobial use and is shared in presentations to appropriate committees and prescribing staff.

## Barriers and Strategies Employed to Overcome Barriers:

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### Prescriber Resistance to Automatic Protocols and Antimicrobial Reordering Policy

This was overcome by using best practices from other sites, meeting with various individual prescribers and physician groups to garner buy-in and having the support of hospital administration and a respected ID physician champion.

### Investment in Resources

Literature was gathered to identify the economic benefits and importance of a formal antimicrobial stewardship program. This information was used to obtain the support of pharmacy and wider hospital leadership, to designate a pharmacy and physician leader and to purchase software surveillance and other resources to improve anti-infective use.

### Time

Antimicrobial surveillance software was used to identify opportunities. Protocols approved by the prescribing staff and governing hospital committees were implemented to allow for the automatic adjustment of antimicrobials based on pre-specified criteria.

### Prescriber and Patient Education

A variety of electronic media, physical posters and place cards were used in prescriber and patient specific areas and at lecture series and prescriber events.

## Results:

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- > Current data from 2017 projects to show a 7-10% reduction in targeted antimicrobial use.
- > Complete data from 2015 to 2016 show:
  - Overall reduction in targeted antimicrobial use (including, but not limited to):
    - 5% reduction of carbapenem use
    - 16% reduction of daptomycin use
    - 55% reduction of tigecycline use

## Next steps:

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- > Continue to add infectious disease related pathways and order sets
- > Develop enhanced system for providing individualized feedback to prescribers regarding anti-infective use
- > Focus efforts on innovating creative ways to educate prescribers and patients on the appropriate use of antibiotics