Evaluation of an Antibiotic Timeout Process
as Part of Antimicrobial Stewardship
within a Community Hospital

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<u>Learning Objectives:</u> Identify components of antimicrobial stewardship that comprise institutional accreditation and conditions of participation standards.

- Timeline of events leading to Antimicrobial Stewardship Program (ASP) formalization:

  - **2004**: Infectious Disease Society of America (IDSA) call to action regarding potential "post antibiotic era"
  - September **2014**: Presidential executive order required Government agencies to outline action plans for ASP in **2015**
  - **2016:** IDSA publishes evidence based recommendations and guideline for successful ASP
  - **2016:** National Quality Forum: ASP playbook published
  - **2017:** Joint Commission establishes ASP quality measures
  - Centers for Medicare and Medicaid Services (CMS) conditions of participation by end of **2017**
  - In 2016, the Infectious Disease Society of America (IDSA) estimated **20-50%** of inpatient antibiotics were inappropriate or unnecessary
- Antimicrobial Stewardship definition:
  - Coordinated interventions to improve the appropriateness of antibiotic prescribing to optimize patient outcomes and avoid adverse reactions
- Broad Goals: <u>Improve patient safety and outcomes</u>
  - Reduce the emergence of resistant organisms
  - Avoid antibiotic associated complications (e.g. *C. difficle* infection)

<u>Seven Core Elements of ASP</u> (National Quality Partners Playbook):

Leadership commitment: written statement from Institution along with financial and time support

Accountability: Single Physician named and accountable for program outcomes

Drug Expertise: Single Pharmacist named with Infectious Disease drug expertise

Actions: Implementation of interventions to improve antibiotic use: IV to PO, pharmacokinetic and renal

adjustment protocols, antibiotic timeout

Tracking and Monitoring: Adherence to policies, rates of *C.difficile* infection, Antibiogram

Reporting: regular and progressive reporting to drive process improvement

Education: Clinician, patient and family education with tangible goals for action

Methods

- ERX (drug product identifier)-based report was generated within the electronic health record (EPIC)

- 60 day retrospective review of adult (>18 years) medical floor discharges for patients receiving target antibiotics: vancomycin, meropenem, cefepime, and piperacillin/tazobactam

- Administration and durations of therapy were validated via chart review of each patient. Defined Daily Dose (DDD) was used to quantify antibiotic usage

- Post- Implementation (to be completed):
  - 60 day reassessment to compare drug utilization post timeout

Preliminary Results:

- Over a 60 day period (1 Sept-30 Oct 2016), 73 patients received 602 doses of targeted antibiotics

- Average duration of therapy: 61.25 +/- 41.9 hours

- Range (min/max): single dose / 207.1 hours (8.6 inpatient days)

- Duration >72 hours: 29 patients (45%)

- 48-72 hours 6 patients (8%)
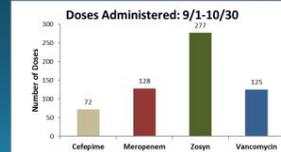
Culture results supported continuation of target antibiotics (definitive therapy) in 41% (n=12) cases
  - Of the remaining 59% (n=17), the clinical picture was less clear and may represent opportunities for de-escalation that could be highlighted by a timeout process

Timeout should address the following questions:
  - Does the patient have an active infection?
  - What is the likely source?
  - Are reliable culture and sensitivity data available?
  - What is the clinical status/trend of patient?
  - Based on this information, what is the plan?

Strengths:
  - Relatively streamlined process to incorporate into workflow once participants are vested into the process
  - Tool to focus pharmacist's clinical management and positively and efficiently impact patient care
  - Demonstrated to reduce duration of therapy with broad spectrum antibiotics

Limitations:
  - Inertia for change at Institution-level can be slow
  - Physician and Pharmacist buy-in:
    - Value added vs time spent
    - Hesitance to change / cancel orders of a colleague "prescribing etiquette"
    - Project improvement fatigue
  - Complexity of infectious disease and lack of definitive, evidence-based guidelines for de-escalation
  - Functionality within EMR leads to challenges in reporting and monitoring:
    - Manual chart review unsustainable long term

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