Impact of Antimicrobial Stewardship Program

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January 28, 2016
Objectives

• Provide an overview on antimicrobial stewardship programs (ASP)
• Describe the antimicrobial stewardship program at Tampa General Hospital (TGH) and its progression
• List the strategies used to improve antimicrobial prescribing at TGH
Antimicrobial Stewardship Program

• Program to change and direct antimicrobial use at a healthcare institution
• Utilize a multidisciplinary team
• Goals:
  ▪ Appropriate antimicrobial treatment
  ▪ Optimize drug dosing and duration
  ▪ Improve patient safety
  ▪ Reduce antimicrobial resistance
Background

• Significant number of hospitalized patients receive anti-infective agents
• Decrease in anti-infective agent production
• Increase in antimicrobial resistance
  ▪ MRSA
  ▪ VRE
• Healthcare costs
Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America Guidelines for Developing an Institutional Program to Enhance Antimicrobial Stewardship


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Benefits of Antimicrobial Stewardship Program

- Improve patient care
- Impact antimicrobial resistance patterns
- Decrease the use of antimicrobial agents
  - $200,000 – $900,000 annual savings in smaller community hospitals and larger academic hospitals
Multidisciplinary Team

- Antimicrobial Stewardship Program
  - Computer Support
  - Infectious Disease Physician
  - Infectious Disease Pharmacist
  - Microbiology
  - Infection Prevention
  - Hospital Staff
Tampa General Hospital

- 1,018 bed hospital
- Level I trauma center
- Anti-infective agents are commonly prescribed multiple infectious disease (ID) teams
Antimicrobial Stewardship Program (ASP)

- Initiated in 2010
- One ID physician and one ID pharmacist
- No restrictions of anti-infective agents
- Duplicate agents on formulary
- Approximately 60 percent of hospital received at least one anti-infective
- Paper chart system
Strategies

- Computer Decision Support
- Antibiotic Review
- IV to Oral (PO) Conversion
- Drug & Dose Selection
- De-escalation Therapy
- Education
Year One

• Build relationships between providers and ASP team members
• Implement policies to optimize anti-infective therapy
  ▪ IV to PO
  ▪ Assist with OB/GYN with Group B Strep
  ▪ Update order sets
• Utilize electronic clinical intervention surveillance system to create clinical alerts, blood culture lists, and vancomycin therapeutic drug monitoring lists
Year One

• Created the Antimicrobial Subcommittee
  ▪ Comprised of various physicians, pharmacists, and other areas
  ▪ Help to make decisions on formulary and policies related to anti-infective agents
  ▪ Functions as a subcommittee to Pharmacy and Therapeutics committee
Year 2

- Transition to an electronic medical record (EMR) system
- Educate pharmacy residents and ID fellows through lectures clinical interventions, and clinical rotations for pharmacy residents
- Develop business proposal to expand ID pharmacist staff
Year 2

- Utilize EMR to support the Surgical Care Improvement Project (SCIP)
- Update EMR order sets
- Create ASP webpage
- Educate medical residents via grand rounds and presentations
- Build and strengthen relationships with the IT support to support EMR
Year 3

• Increase ID pharmacist staff from one to two to support goals of ASP
• Include a requirement for an indication to be selected for targeted anti-infective agents upon EMR order entry
• Adjust EMR report to display the selected indication for each anti-infective to support optimal dosing
Year 3

• Provide education to pharmacists regarding SCIP measures related to anti-infective agents for inpatient
• Use electronic surgery to gauge pharmacists’ interest in various ID topics and determine topics of focus for the ASP
  – Development of clinical pathways
  – Education on antibiotic resistance
  – Overview of available antibiotics
  – HIV education
  – Developing a policy to standardize anti-infective dosing
    • Allowing pharmacists to make renal dose adjustments without contacting the ordering provider
Year 4

• Develop an ID lecture series
• Adjust ASP strategy from utilizing medication lists to reviewing each patient receiving an anti-infective
• Add anti-infective columns in the EMR patient list view to show the antibiotic, anti-viral, and anti-fungal agents
• Implement weekly standing huddle with various pharmacists who round with medical teams
Year 5 to Current

• Integrating day time pharmacy staff into certain stewardship activities
• Introduce fecal microbiota transplantation (FMT) for certain *C. difficile* infected patients
• Restriction of certain agents by Infectious Diseases and/or ASP
• Updating metrics and developing an ASP/EMR workflow
• Collaborating with Intervention Radiology and Orthopedic Trauma
Elements for Success

• Effective communication
• Providing positive feedback to pharmacy staff members
• Respecting those who want to practice autonomy in their respective area
ASP and Microbiology

• Collaborate closely with Microbiology for trends and updating panels
• Antibiogram development
• Assist in evaluating certain patients to ensure optimal therapy
• Microbiology part of Antimicrobial Subcommittee
ASP and Infection Prevention

- Work closely to review certain patient cases to identify where anti-infective agents could have been optimized
- Communicate anti-infective shortages
- Part of infection prevention meetings
Impact of Antimicrobial Stewardship Program
Results

• Decrease anti-infective expenditure significantly
• Decrease anti-infective percentage from 60 percent to 55 percent despite increasing census per year
• Improved utilization with various agents such as daptomycin, linezolid, meropenem, micafungin, etc.
Barriers

• Changing the culture about anti-infective prescribing takes time
• Various types of providers at TGH
  ▪ Academic and private
• Developing metrics to show the impact of ASP besides financial impact
• Need full-time IT support to help with EMR and ASP endeavors
Summary

• Customize ASP based upon your institution
  ▪ Each institution may have different issues
• Involve key players that can help your stewardship program
• Identify how to develop metrics
Questions ?