Building a Successful Business Case for Antimicrobial Stewardship

Daniel P. McQuillen, MD, FIDSA, FACP
Lahey Clinic Center for Infectious Diseases and Prevention
Chair, IDSA Clinical Affairs Committee

ASP: Motivating Factors

- Antibiotics account for up to 30% of hospital pharmacy budgets
- Up to 50% of antimicrobial use is inappropriate
- 69% of patients on inappropriate Rx 24 hours after positive MRSA culture
  - 26.1% vs. 16.6% mortality with inappropriate vs. appropriate RX
  - LOS 2 days less with appropriate treatment
  - Antibiotics 2nd most common class of drugs to cause ADRs (after analgesics)

John & Fishman CID 1997;24:471-485
Schramm, et al. Crit Care Med 2006;34:2069-2074
Bates, et al. JAMA 1995;274:29-34

ASP: Motivating Factors

- HHS Action Plan to Prevent Healthcare-Associated Infections
  - Top 5 Campaign Messages
    - Hand hygiene
    - Healthcare personnel vaccination
    - Patient vaccination
    - Prompt removal of catheters and other devices
    - **Antimicrobial stewardship**

HHS Action Plan to Prevent Healthcare-Associated Infections 2009; http://www.hhs.gov/ophs/initiations/hai/actionplan/index.html

ASP: Motivating Factors

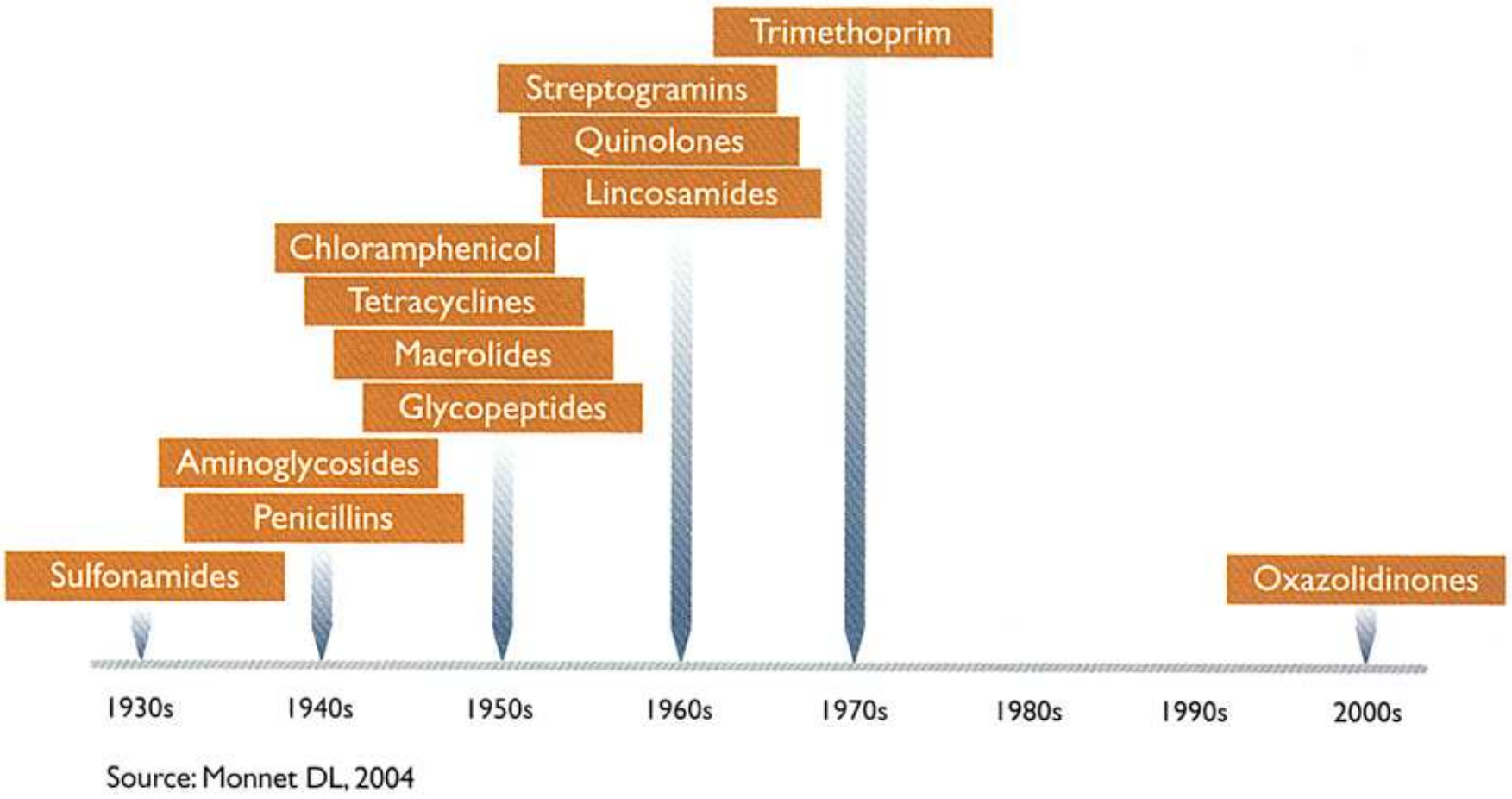
- The Joint Commission (NPSG #070301)
  - Implement evidence-based practices to prevent HAIs due to multidrug-resistant organisms in acute care hospitals
  - Applies, but is not limited, to epidemiologically important organisms such as MRSA, CDI, VRE, and MDR-GNB
  - Implement policies and practices aimed at reducing the risk of transmitting multidrug-resistant organisms. These policies and practices meet regulatory requirements and are aligned with evidence-based standards (for example, the Centers for Disease Control and Prevention [CDC] and/or professional organization guidelines)

ASP: Motivating Factors

- Antibiotic use already used as quality metrics
  - SCIP, Pneumonia
    - Guideline adherence
      - Selection, indication timing
    - 27% decrease in antibiotic use with SCIP
- CMS Healthcare Acquired Infections (HAIs)
  - CLABSI (FY2013)
  - SSI (FY2014)
  - CaUTI (FY2014, proposed)
  - MRSA bacteremia (FY2015, proposed)
  - *C. difficile* (FY2015, proposed)
  - VAP (future consideration)
  - Post procedure pneumonias (future consideration)
  - MDRO (VRE, *Klebsiella*, *Acinetobacter*) (future consideration)

Jacob & Gaynes Expert Rev Anti Infect Ther 2010;8:893-902
FY 2012 IPPS Proposed Rule

ASP: The Post-antibiotic Era?



ASP: Program Design

- Prospective audit with intervention and feedback
  - Evidence grade A-1
- Formulary restriction and prior authorization
- Hybrids
  - Most programs
- Reporting structure
  - P&T function of Quality & Safety

Dellit, et al. CID 2007;44:159-177
Owens, et al. Am J Health-Syst Pharm 2009;66(Suppl 4):S15-22*

ASP: Program Elements

- Education
- Guidelines and clinical pathways
  - Based on local microbiology and resistance patterns
- Streamlining/de-escalation of therapy
- Dose/pharmacokinetic optimization
- IV to PO switch
- Antibiotic order forms
- Antibiotic cycling
- Combination therapy to prevent emergence of resistance

Dellit, et al. CID 2007;44:159-177

ASP: Infection Control

- Infection prevention programs alone do not reduce resistance
- ASP programs can limit antimicrobial use and decrease resistance
- ICP and ASP are needed together to decrease the rates of bacterial resistance and limit the spread of resistant bacteria
- ICP and ASP as a "Care Bundle"

Gould J Hosp Infect 2009;73:386-391
Toth, et al. Am J Health-Syst Pharm 2010;67:746-749

ASP: Goals

- Primary goal of an ASP is:

"to optimize clinical outcomes while minimizing unintended consequences of antibiotic use-toxicity, selection of pathogenic organisms (*C. difficile)* and emergence of resistance"

Dellit, et al. CID 2007;44:159-177

ASP: Goals

- Improved patient safety and quality assurance
- Reduction of medication errors
- Allergy identification and delineation
- Prevention of drug-drug interactions
- ↓ bacterial antimicrobial resistance
  - (long term)
- Improve patient care and health care outcomes

Dellit, et al. CID 2007;44:159-177

ASP: Benefits

- Systematic review of 24 selected studies
  - Antibiotic use was decreased by:
    - Computer-assisted decision support
    - Formal reassessment after a specified period
    - ID consultation
  - ASPs decreased:
    - Adverse drug reactions
    - Allergy alerts

Kaki, et al. J Antimicrob Chemother 2011;66:1223-1230

ASP: Outcomes

- Active and interactive programs:
  - ↓ antibiotic use
  - ↓ costs
  - ↓ length of therapy
  - ↓inappropriate use
  - ↓ ADRs
  - ↓ resistance
  - No ↑ in:
    - Nosocomial infection rates
    - Length of stay (some studies showed ↓ in LOS)
    - mortality

Kaki, et al. J Antimicrob Chemother 2011;66:1223-1230

ASP: Outcomes

- Want to optimize:
  - Quality of care/improvement
  - Disease-based management rather than antibiotic management
  - Cost savings

Goff Curr Opin Infect Dis 2011;24 Suppl 1:S11-20

ASP: Economic Analysis

- Evaluated ASP for economic benefit
- Quality adjusted life year (QALY)
  - ASP: $2367
  - B-blocker after acute MI: $4500
  - Screening 40 y/o men for HTN: $16,300
  - Driver's side airbags: $24,000

Scheetz, et al. J Antimicrob Chemother 2009;63:816-825

ASP: Bottom Line

- Antimicrobials are societal drugs
  - One can become infected with a resistant pathogen without ever having received the particular antimicrobial
  - The misuse of antimicrobials has societal consequences
- Kunin:
  - …there are simply too many physicians prescribing antibiotics casually…"

Owens and Ambrose Diagn Microbiol Infect Dis 2007;57:77S-83S
Kunin CID 1997;25:240-241

Negotiating with Administration

- Myths and realities

ID Clinicians and Hospital Administration

Hospital Administrators: Generalizations

- All they are all about is the bottom line
- They are clueless about patient care, they are just business people
- We do not speak the same language, we will never see eye to eye
- We surely know more than they do about quality and safe patient care
- They are the enemy

ID Clinicians and Hospital Administration

Infectious Disease Clinicians: Generalizations

- We are all very smart and excellent clinicians
- We know a lot more than they do about how the money should be spent and how the hospital should run
- We surely care more than they do about quality and safe patient care
- They should do what we ask because of our training and knowledge

ID Clinicians and Hospital Administration

Reality Check

- Very few ID clinicians understand hospital operations or finance, especially at the beginning
- Just like most ID specialists are well trained and educated, most hospital administrators are very well trained and educated and many have a health care background
- If hospital administrators are not very focused on the bottom line, they should be fired. “No money, no mission”
- You can successfully negotiate with hospital administration if you go about it the right way

ID Clinicians and Hospital Administration

- What is their interest?
  - Making More Money than they Spend (controlling costs)
  - Publicly Reported Metrics
    - HAIs
    - HACs
    - Core Measures
    - Readmissions
    - HCAHPS
  - $$ Associated with P4P
- What are we negotiating for?
  - Administrative stipends or even entire salary
  - Resources to help us accomplish important goals

ID Clinicians and Hospital Administration

- ID clinicians are not revenue generators
- ID clinicians enable others to generate revenue
- ID clinicians can help dramatically with both cost avoidance and now with P4P
- ID clinicians are ideal people to lead quality and safety initiatives
- Transparency of data has now made quality a high priority of the hospital CEO and the Board

Useful References

How to Make Antimicrobial Stewardship Work: Practical Considerations for Hospitals of All Sizes

Dimple Patel, PharmD, BCPS; and Conan MacDougall, PharmD, MAS†*

Abstract

Implementation of an antimicrobial stewardship program in a hospital is complicated by a variety of challenges. Key issues facing stewardship personnel include recruiting personnel and building relationships, establishing program metrics, selecting stewardship strategies, working with clinicians, reporting results, and adapting the program. These issues can present different challenges at community hospitals and academic medical centers. Strategies for overcoming these challenges require accounting for the unique characteristics of each institution.

Key Words—antimicrobial stewardship, microbiology, hospital pharmacy

Hosp Pharm—*2010;45(11 Suppl 1):S10–S18*

Assembling an AST

Table 1. Practical considerations for potential antimicrobial stewardship team resources

Ideal resources	Potential alternative resources
Infectious diseases (ID) physician	Other "physician champion" • Staff physician with ID interest • P&T chair or committee member • Local thought/practice leader • Physician groups who frequently prescribe antimicrobials Residents/fellows
ID pharmacist	Non–ID-trained clinical pharmacist Staff pharmacists Residents/students Working director of pharmacy
Clinical microbiologist	Microbiology laboratory technician Pathologist
Infection control coordinator	Nursing staff Patient safety representative
Information systems specialist	Information systems staff Commercial data-mining programs

Note: P&T = Pharmacy & Therapeutics.

Useful References

Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America Guidelines for Developing an Institutional Program to Enhance Antimicrobial Stewardship

Timothy H. Dellit,[1] Robert C. Owens,[2] John E. McGowan, Jr.,[3] Dale N. Gerding,[4] Robert A. Weinstein,[5] John P. Burke,[6] W. Charles Huskins,[7] David L. Paterson,[8] Neil O. Fishman,[9] Christopher F. Carpenter,[10] P. J. Brennan,[9] Marianne Billeter,[11] and Thomas M. Hooton[12]

[1]Harborview Medical Center and the University of Washington, Seattle; [2]Maine Medical Center, Portland; [3]Emory University, Atlanta, Georgia; [4]Hines Veterans Affairs Hospital and Loyola University Stritch School of Medicine, Hines, and [5]Stroger (Cook County) Hospital and Rush University Medical Center, Chicago, Illinois; [6]University of Utah, Salt Lake City; [7]Mayo Clinic College of Medicine, Rochester, Minnesota; [8]University of Pittsburgh Medical Center, Pittsburgh, and [9]University of Pennsylvania, Philadelphia, Pennsylvania; [10]William Beaumont Hospital, Royal Oak, Michigan; [11]Ochsner Health System, New Orleans, Louisiana; and [12]University of Miami, Miami, Florida

http://cid.oxfordjournals.org/content/44/2/159.full.pdf

Useful References

The Value of Infectious Diseases Specialists: Non–Patient Care Activities

Daniel P. McQuillen,[1] Russell M. Petrak,[2] Ronald B. Wasserman,[3] Ronald G. Nahass,[4] Jason A. Scull,[5] and Lawrence P. Martinelli[6]

[1]Lahey Clinic Center for Infectious Diseases and Prevention, Tufts University School of Medicine, Burlington, Massachusetts; [2]Metro Infectious Diseases Consultants, Hinsdale, Illinois; [3]Infectious Diseases Medical Group, Walnut Creek, California; [4]ID CARE, Hillsborough, New Jersey; [5]Clinical Affairs, Infectious Diseases Society of America, Arlington, Virginia; and [6]Consultants in Infectious Diseases, Lubbock, Texas

- Antimicrobial Stewardship
- Infection Prevention
- Health Care Worker well-being and exposures
- How to negotiate

http://cid.oxfordjournals.org/content/47/8/1051.full

Summary

- Adapt program personnel and structure to your local situation
- Don’t just slap sets of national guidelines together – adapt them
- Agree on metrics, set goals for change (or maintenance) and report on results

Shared Savings / Incentives

- In recent proposed rules for the Physician Fee Schedule, CMS has asked for proposals for Stark exceptions to allow gain-sharing
- IDSA has consistently advocated for exceptions to allow shared savings for ASP and Infection Prevention
- We are currently developing a test-case proposal for ASP/IP between an ID practice and a hospital to obtain an OIG opinion