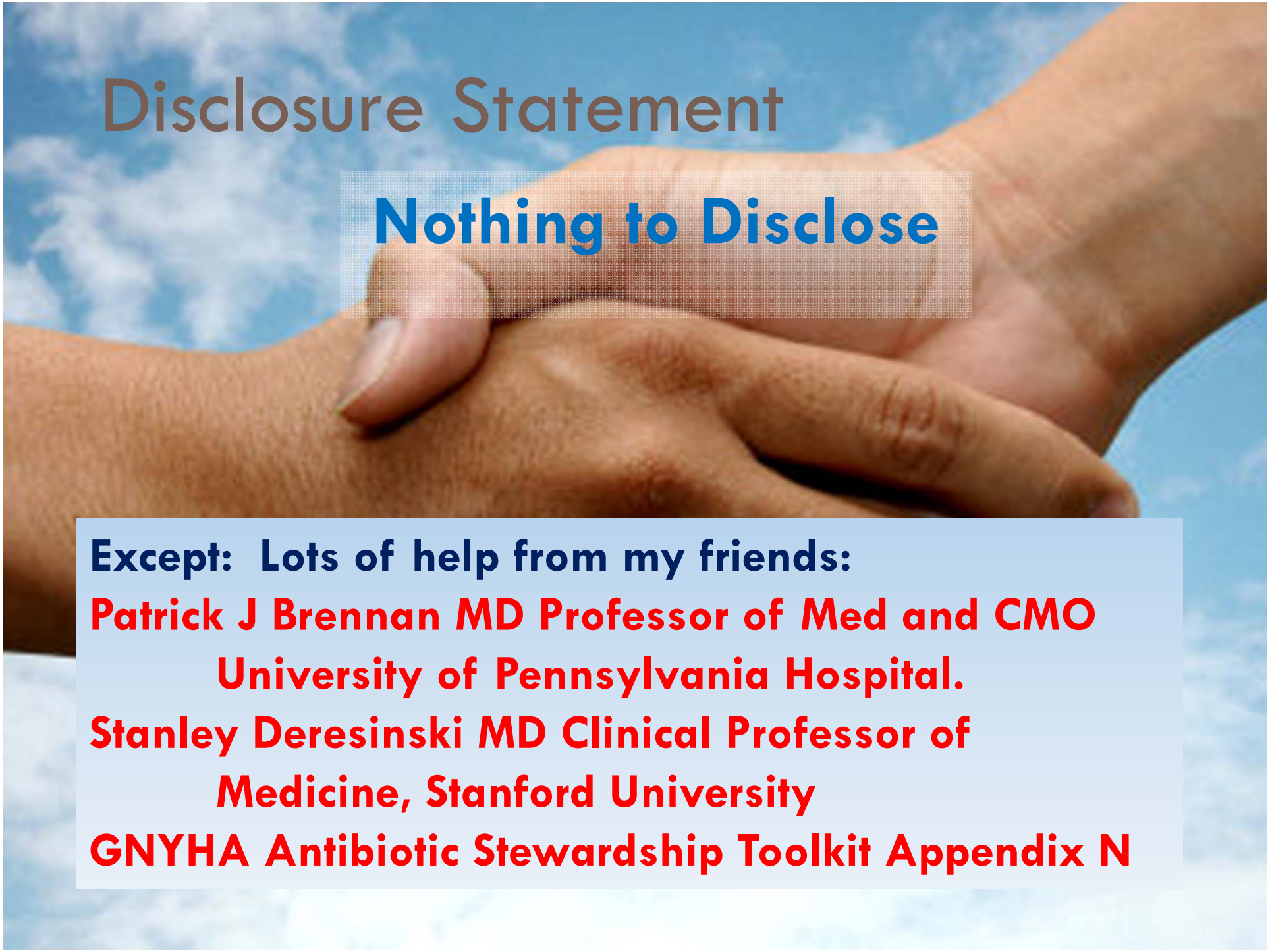
MAKING THE BUSINESS CASE FOR ASP: TAKING IT TO THE C-SUITE

Gary R Kravitz MD FACP FIDSA FSHEA

St. Paul Infectious Disease Associates

Hospital Epidemiologist/ Director ASP United Hospital, St. Paul, MN



Disclosure Statement

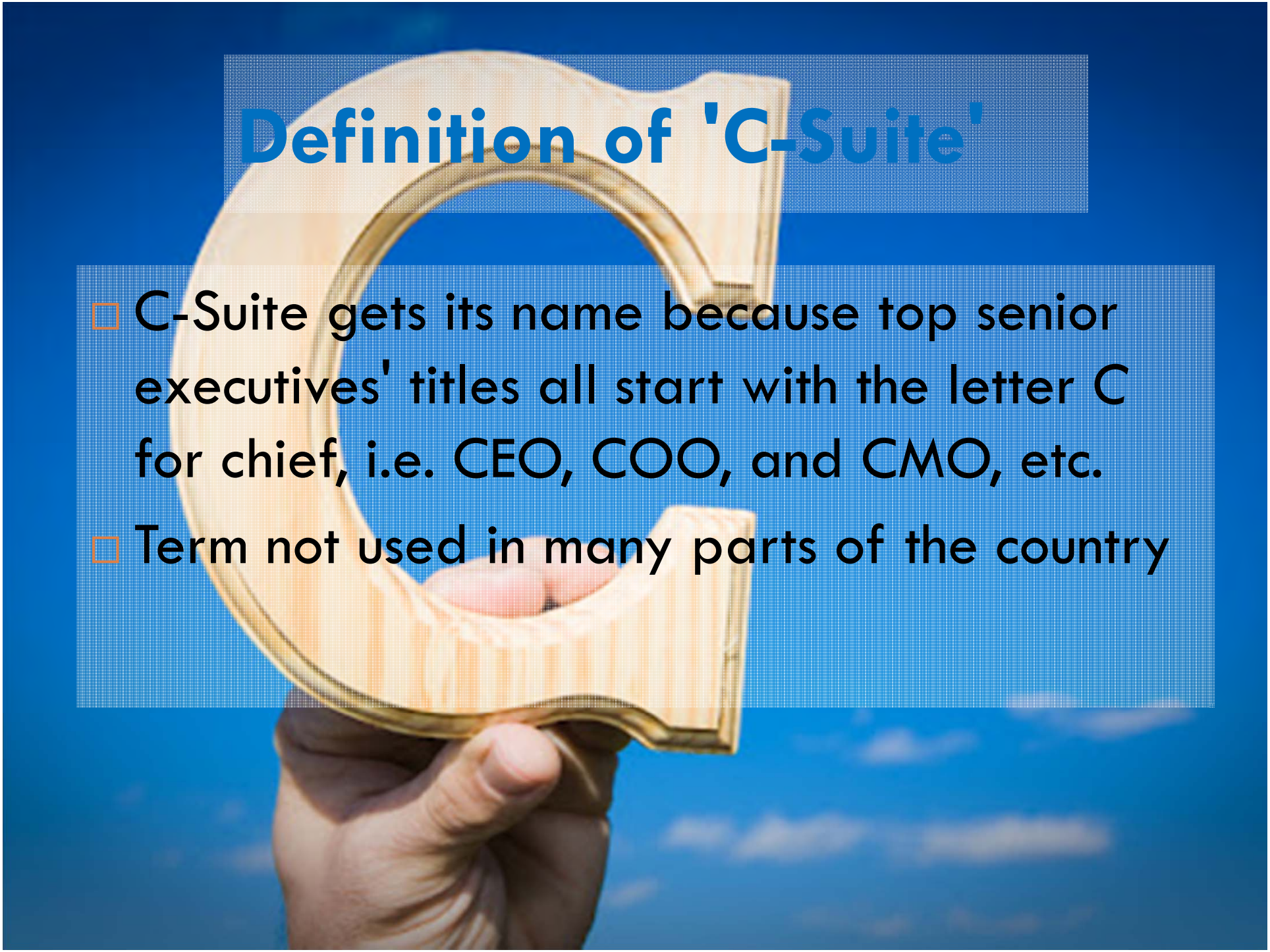
Nothing to Disclose

Except: Lots of help from my friends:

Patrick J Brennan MD Professor of Med and CMO University of Pennsylvania Hospital.

Stanley Deresinski MD Clinical Professor of Medicine, Stanford University

GNYHA Antibiotic Stewardship Toolkit Appendix N



Definition of 'C-Suite'

- C-Suite gets its name because top senior executives' titles all start with the letter C for chief, i.e. CEO, COO, and CMO, etc.
- Term not used in many parts of the country

Actual "C-Suite"

- Vice President, Quality and Effectiveness
- Chief of the Medical Staff
- Director, Quality Improvement
- Vice President, Patient Care Services & Chief Nursing Officer

Why is the Business Case for Antibiotic Stewardship Important to the C-Suite?

- Hospital margins are thin
- Future: do things better, but with less money
- If hospitals are to thrive, they will need to:
  - Improve quality, while becoming
  - More cost-effective …
  - While growing revenue (new services, ⬆ volume)
- C-suite also knows that …
  - It is easier to calculate the cost of running the ASP than
  - the savings that may result

What does Hospital Administration want to hear from you?

"I am going to cut your costs", or

"I will increase your revenue"

What the CEO really wants to hear is:

"I will cut your costs and increase your revenue"

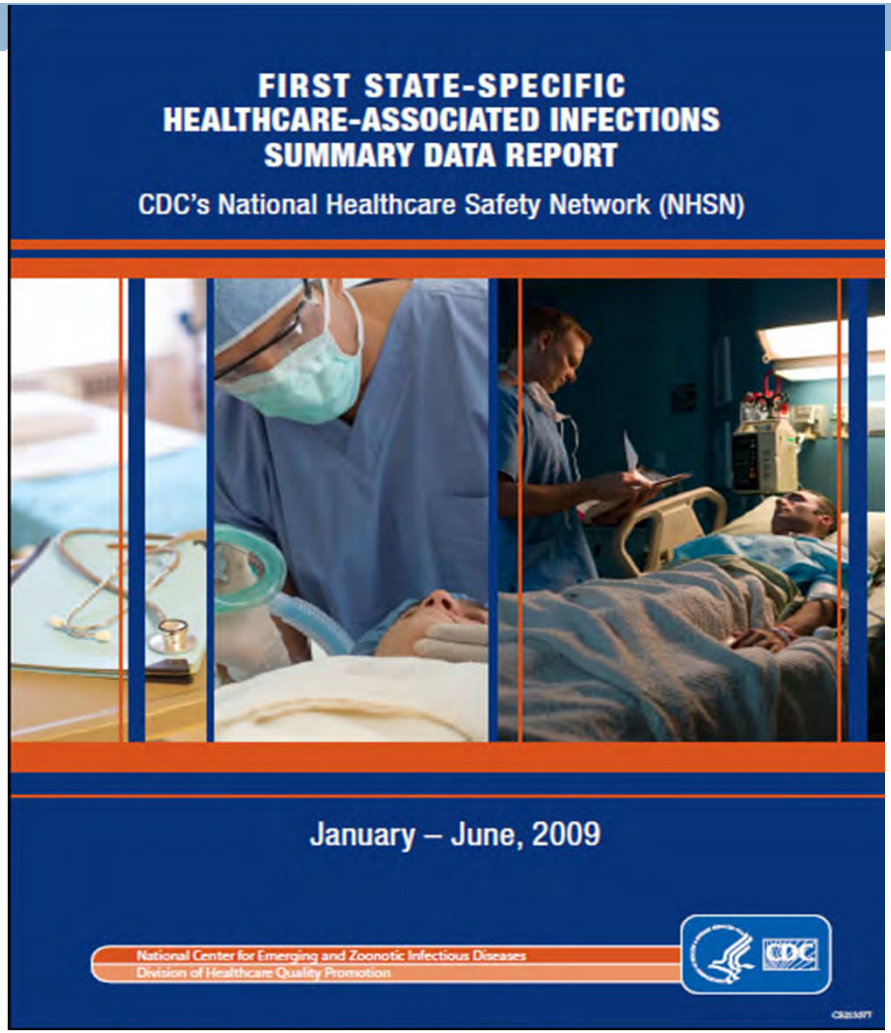
- But … Is there robust evidence that ASPs save enough money in direct costs to pay for themselves?
- Do they mitigate the development of HAIs? MDRO's? Will that save money?
- Could ASPs somehow increase hospital revenue?

potential positive effects of ASP on hospital revenue:

- Fewer cases of C difficile and MDROs can result in:
  - ↑ Reputation of hospital
  - More satisfied patients who will return if they need
  - Free up beds for new admissions
  - Happier physicians who want to work there
  - VBP/P4P in the near future - hospitals that perform better will get paid more

C-Suite is well aware of the problem of HAIs

- "99,000 Die Yearly From Preventable Hospital Infections"
- "Hospital-Acquired Infection Rates Go Public"
- "Study reveals *Clostridium difficile* spreads differently than hospitals thought"
- "Hospital-Acquired Superbugs on the Rise"



The Economic Imperative of Hospital-Acquired Infections is Compelling

- Patients without hospital-acquired infection (HAI):
  - Mortality = 2.0%
  - Length of stay = 4.7 days
  - Average Charge = $37,943
- Patients with (HAI):
  - Mortality = 12.2%
  - Length of stay = 19.7 days
  - Average Charge = $191,872

Pennsylvania Health Care Cost Containment Council

January 2009

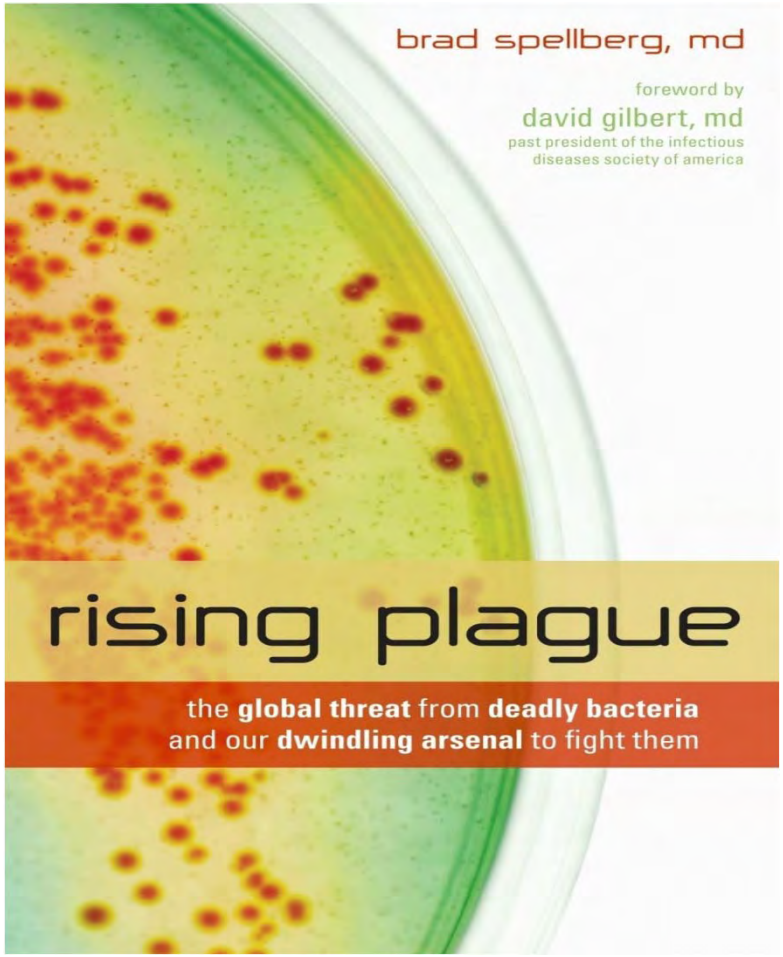
HAI problem is compounded by MDROs: Incidence of MDROs is Growing

- Drug -Resistant infections prolong length of hospital stay by 24% and increase costs by 29% vs. susceptible infections

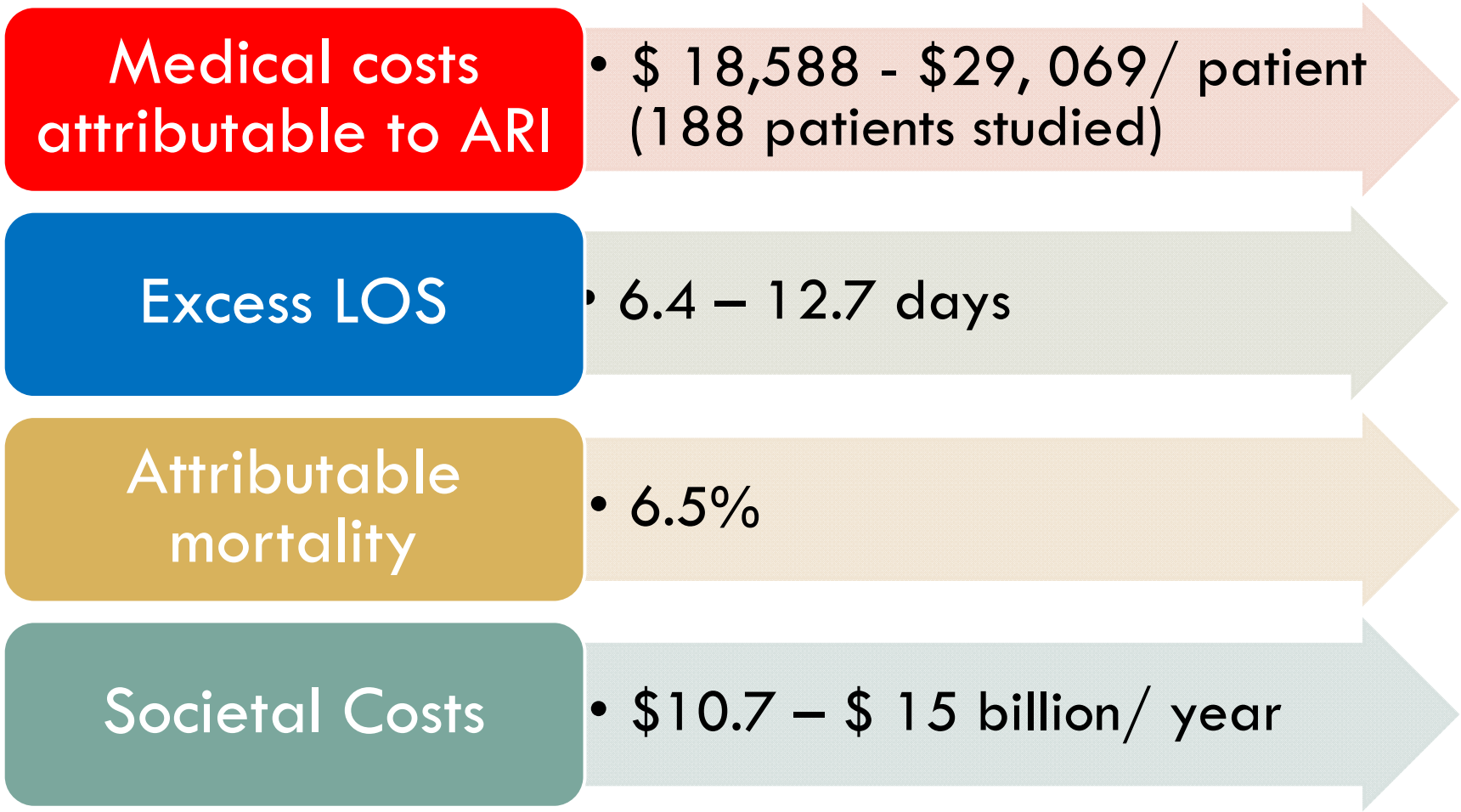
  (Maudlin et al. *Antimicrobial Agents and Chemotherapy* (2010) 54:109-115.)

- In the U.S. antibiotic resistance adds 8 million additional hospital days per year.

  (Roberts et al. *Clinical Infectious Diseases* (2009) 49:1175-84; & PRN Newswire —Antibiotic-Resistant Infections Cost the U.S.)



The Costs of Resistance



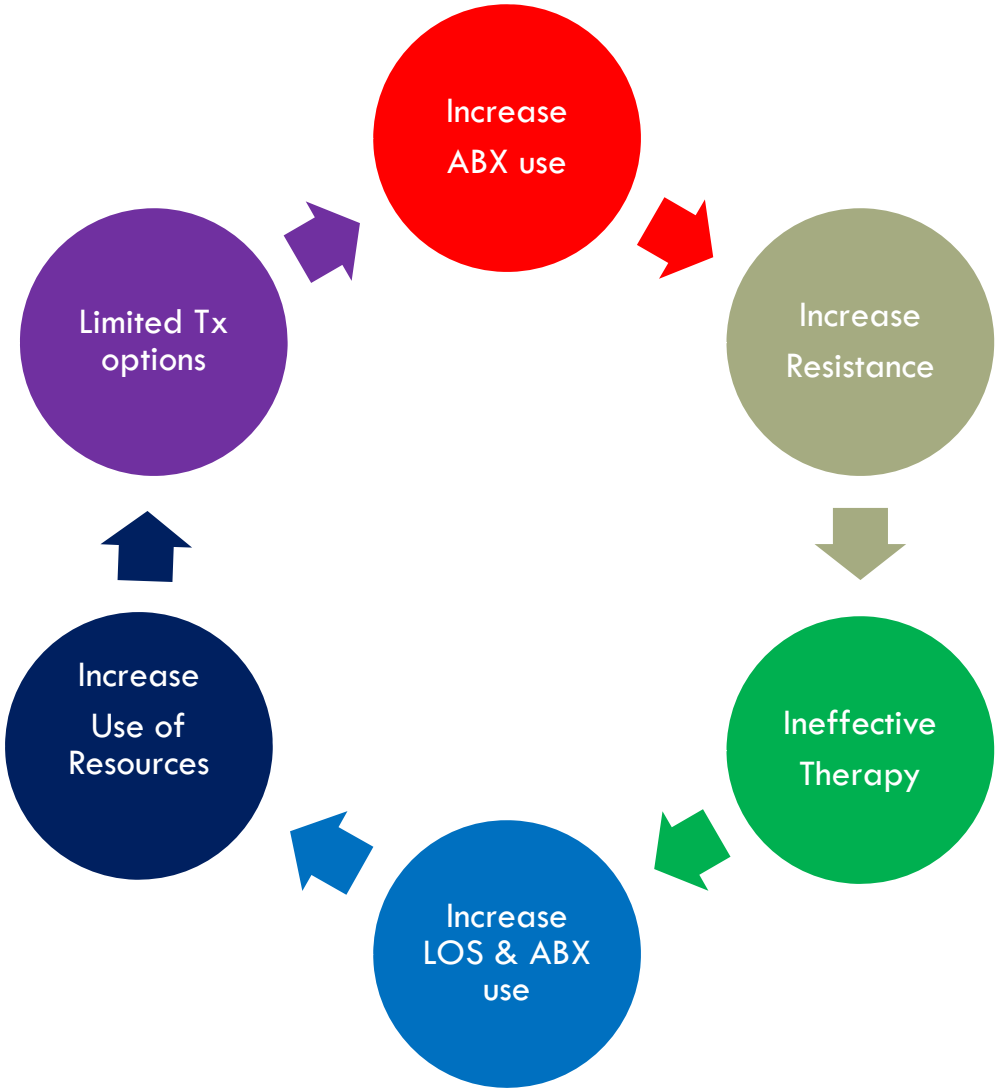
Roberts RR et al CID 2009; 49:1175-84. Hospital and Societal Costs of Antibiotic-Resistant Infections: Implications for Antibiotic Stewardship

Why target antimicrobials?

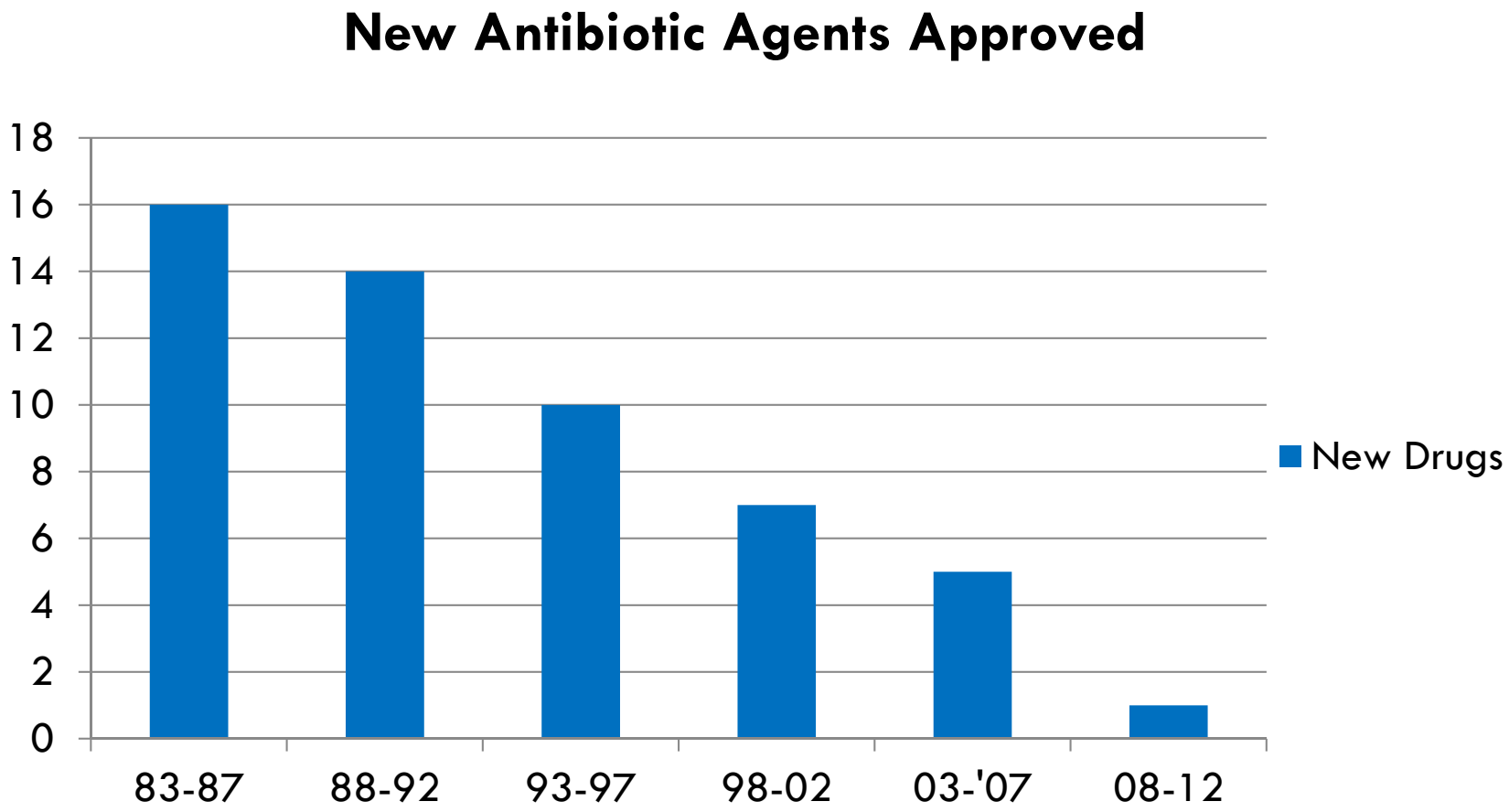
- 30% of hospitalized patients at any given time receive antimicrobials
- 1/3 – 1/2 are ***inappropriate or unnecessary***
- Leads to
  - Antibiotic Resistance
  - Increased morbidity/mortality
  - Collateral damage, e.g., C. *difficile*
  - Increased costs
- "*Antimicrobial use is the key driver of resistance.* This selective pressure comes from a combination of overuse… and also from misuse."

  -WHO Global Strategy for Containment of Antimicrobial Resistance, 2000.

How ABX affect Patients and Populations

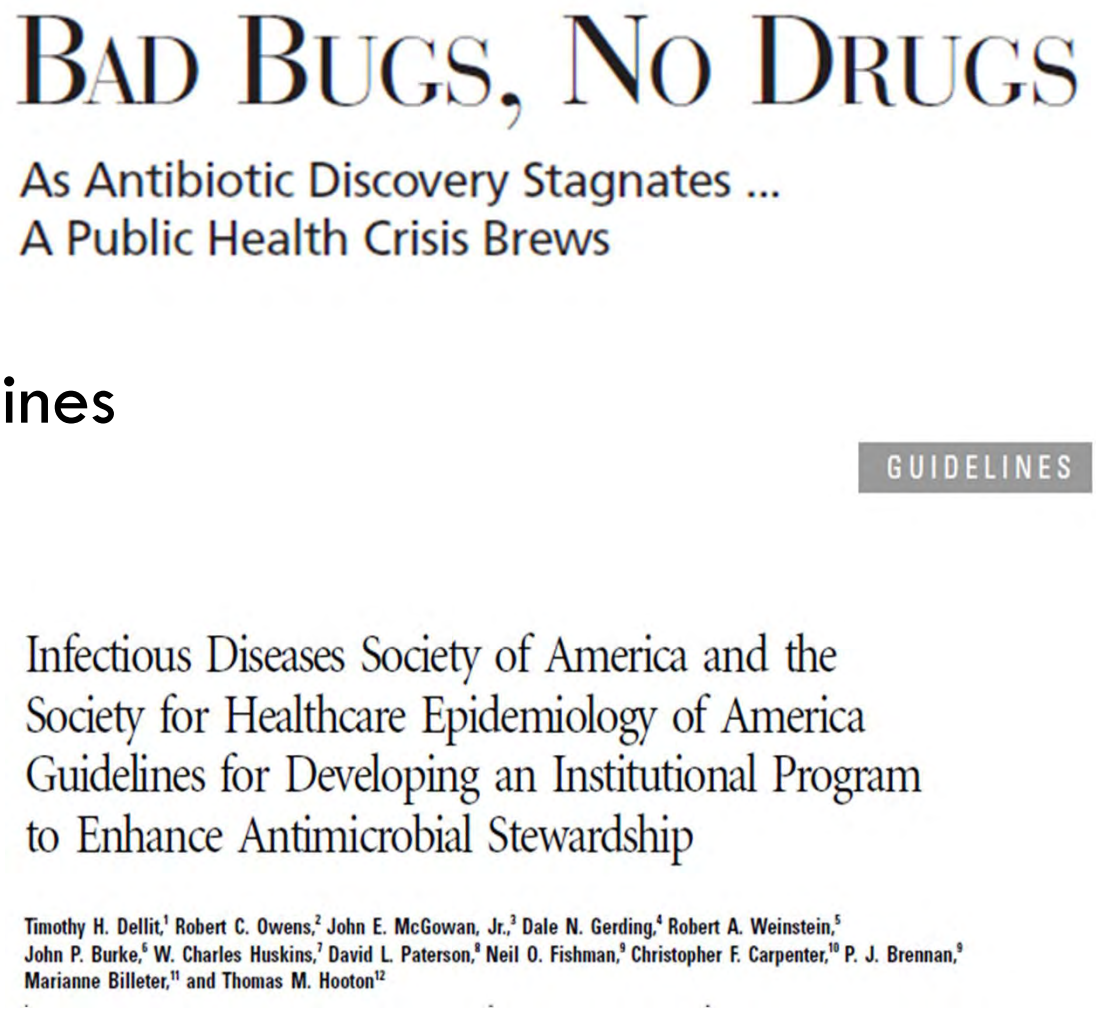


Dwindling Antibiotic Pipeline



Increase in MDROs Demands a Response: that response is … Antibiotic Stewardship

- Regulatory bodies
  - JCAHO
  - CDC
  - MDH
- Professional Guidelines
  - IDSA
  - SHEA



BAD BUGS, NO DRUGS

As Antibiotic Discovery Stagnates ...
A Public Health Crisis Brews

GUIDELINES

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]

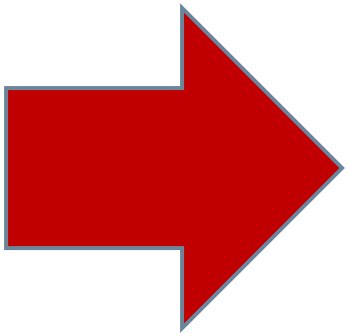
Antimicrobial Stewardship

A multidisciplinary approach to optimizing antimicrobial use through appropriate selection, dosing, and duration while minimizing unintended consequences.

Correct agent

Right Dose

Right Duration



Cure/Prevent Infection

Minimize Toxicity

Prevent Resistance

Antimicrobial Stewardship - Goals

- Optimize patient clinical outcomes
- Minimize unintended consequences
  1. Toxicity
  2. Selection of pathogenic organisms (e.g. C. *difficile*)
  3. Emergence of resistant organisms

- Other Aspects
  1. Reduce health care costs

Intervention Types

- Prospective audit with intervention & feedback
- Restrictive formularies
- Streamlining
- De-escalation
- Dose optimization
- IV →PO switch
- Guideline pathways
- Combination therapy
- Targeting high cost/ broad-spectrum drugs
- Education
- Antibiotic cycling

Antibiotic Stewardship Effectiveness?

- Cochrane review – 81% reported decreased antibiotic use (60 programs)
- Reduction in ABX usage, 22-36%
- Savings range from $200,000 - $900,000 (depends of size of hospital/ service lines)
- Another review (Patel et al.): 36 studies
  - Cost: 27/29 studies showed a cost reduction, average 25%
  - Efficacy: 22 studies with pos. effects on resistance

Cochrane Database Syst Rev. 2005(4):CD003543,
Patel D et al. *Expert Review of Anti-Infective Therapy* 2008; 6:209 – 22.

Antibiotic Stewardship Effectiveness in Smaller Hospitals?

- Several smaller hospitals with limited staff and resources have instituted cost-effective programs

  - LaRocco S. Clin Infect Dis 2003;37:742-3
  - www.cdc.gov/getsmart/.../stories.html

Effectiveness: ASP vs. phone approval of restricted antibiotics by ID fellows

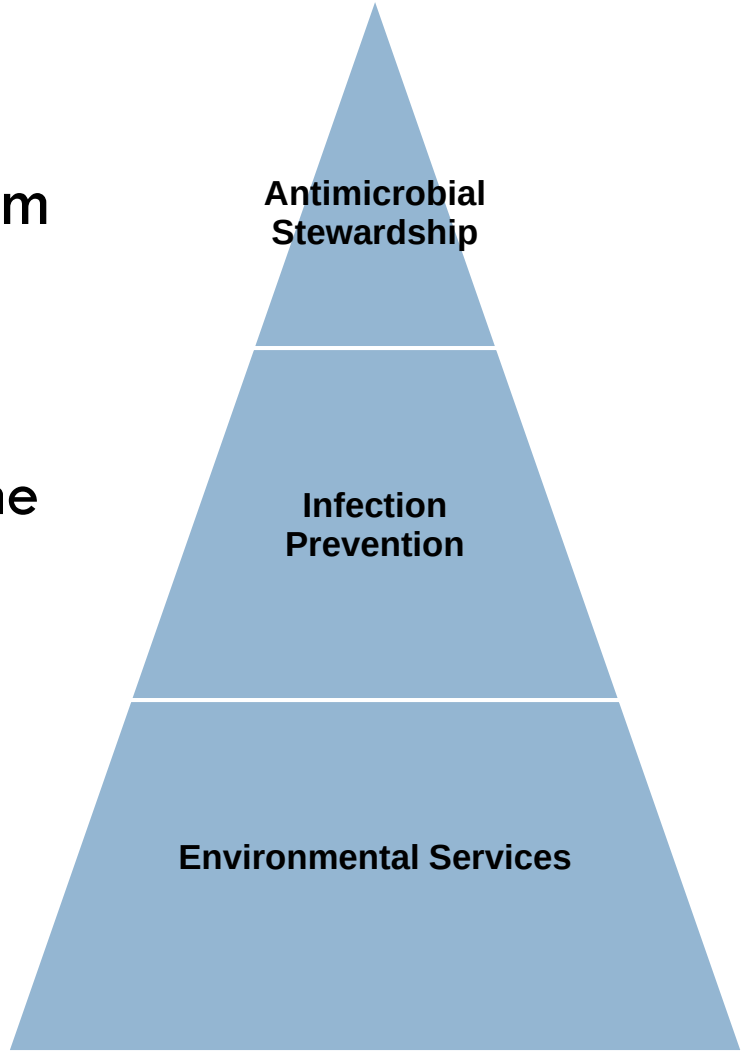
Outcome Measure	ID Fellow	ASP
Appropriateness of Recommendation	47%	87%
Clinical Cure Rate	42%	64%
Treatment Failure Rate	28%	15%

Univ. of Penn Hospital

Gross R, Morgan AS, Kinky DE, Fishman NO et al. Clin Infect Dis. 2001;33:289-295.

Implementing Antimicrobial Stewardship: the third step of the IP pyramid

- Environmental Services +
- Infection prevention Efforts +
- Antimicrobial Stewardship Program
  - Despite the benefits of ASPs, an APIC survey found that fewer than 50% of hospitals surveyed have one
  - **It should be a focus for every hospital.**



Getting traction with the C-Suite

Keys to Success in Negotiating:

- It is all about relationships
- Good relationships are based on trust
- Trust has to do with credibility

Are you this kind of ballplayer?

What is the CEO looking for in your proposal?

- Is it consistent with the hospital's strategy?
- What is the evidence for the proposal?
- How does it compete with other strategies?
  - Why should I burn my budget capital on this idea?
- How will we measure success?
  - Outcomes
  - Patient Safety Goals
  - Satisfaction
  - Efficiency

ASP Proposal/Budget
Must be Scalable to reflect ….

- Size of hospital (# of beds)
- Case-mix index/ service lines
- Availability of ID physicians/ ID PharmD

Stewardship Program Options

There is no one way to implement ASP.

It can be tailored to an organization's needs and can be implemented at a system-wide or unit-by-unit level. Options include:

- Formulary restrictions and preauthorization;
- Selective reduction of targeted agents;
- Earlier discontinuation;
- Prospective audit, intervention; and feedback.

The Stanford ASP Resources

Member	Responsibilities
ID Physician (0.5 FTE)	• Physician champion • Coordinate program • Leads educational/academic detailing • Report to hospital administration
ID trained pharmacist (2 FTE)	• Coordinate day-to-day activities • Daily prospective audits with interventions and feedback • Provide in-services
ID Fellow (0.25 FTE)	• Work with ID pharmacist on a daily basis • Curbside consults

Summary of Costs at Stanford: (antibiotic budget at $4.4 million/ year)

Component	Costs
ID Physician (0.5 FTE)	$130,000*
ID trained pharmacist (2 FTE)	$360,000*
ID Fellow (0.25 FTE)	$22,000*
Data analyst	• $102,000 annually • $15,000 server hardware (one-time) • $12,000 setup costs (one-time)
Total Annual Cost (Year 1)	$641,000

* Includes Benefits (30%)

Summary of Costs: United Hospital (antibiotic budget $950,000/year)

Component	Costs
ID Physician	70,000
Unit-based pharmacists	0
Data analyst	5,000
Total Annual Cost	75,000

Building your business case: try keeping it simple

Will your program be self-supporting?

How much can you estimate an effective ASP can save through easily measured cost savings?

Answer: conservative estimated savings:

- 20% savings in antibiotic costs
- 20% decline in hospital-acquired C difficile costs
- Totals to about $400,000/year for a 300 bed hospital

Next step: Make a written proposal

- Make the business case:
  - Cite savings reported by similar hospitals or
  - Results of a pilot study on a high use unit at your hospital
- Delineate the mechanics of ASP
- Delineate the time estimates needed to do the job
  - Time spent on AST rounds
  - Time spent on staff/program development

Delineate how the ASP will operate

- Who?
- Where?
- When?
- How?
- Standards used?
- Reportable to whom?
- How effects are measured

Outcome Measures

- Collect baseline data
- Delineate Process goals
  - Recommended acceptance rate
  - Dose optimizations
  - Route optimizations
  - Eliminate needless courses of antibiotics
- Delineate Outcome goals
  - Total ABX expenditures ($, DOT/1000 days)
  - ABX cost per patient-day
  - Impact assessments (C. *difficile* rates, MDRO rates)
  - 30 day readmission rates

Getting a contract – it takes two to tango

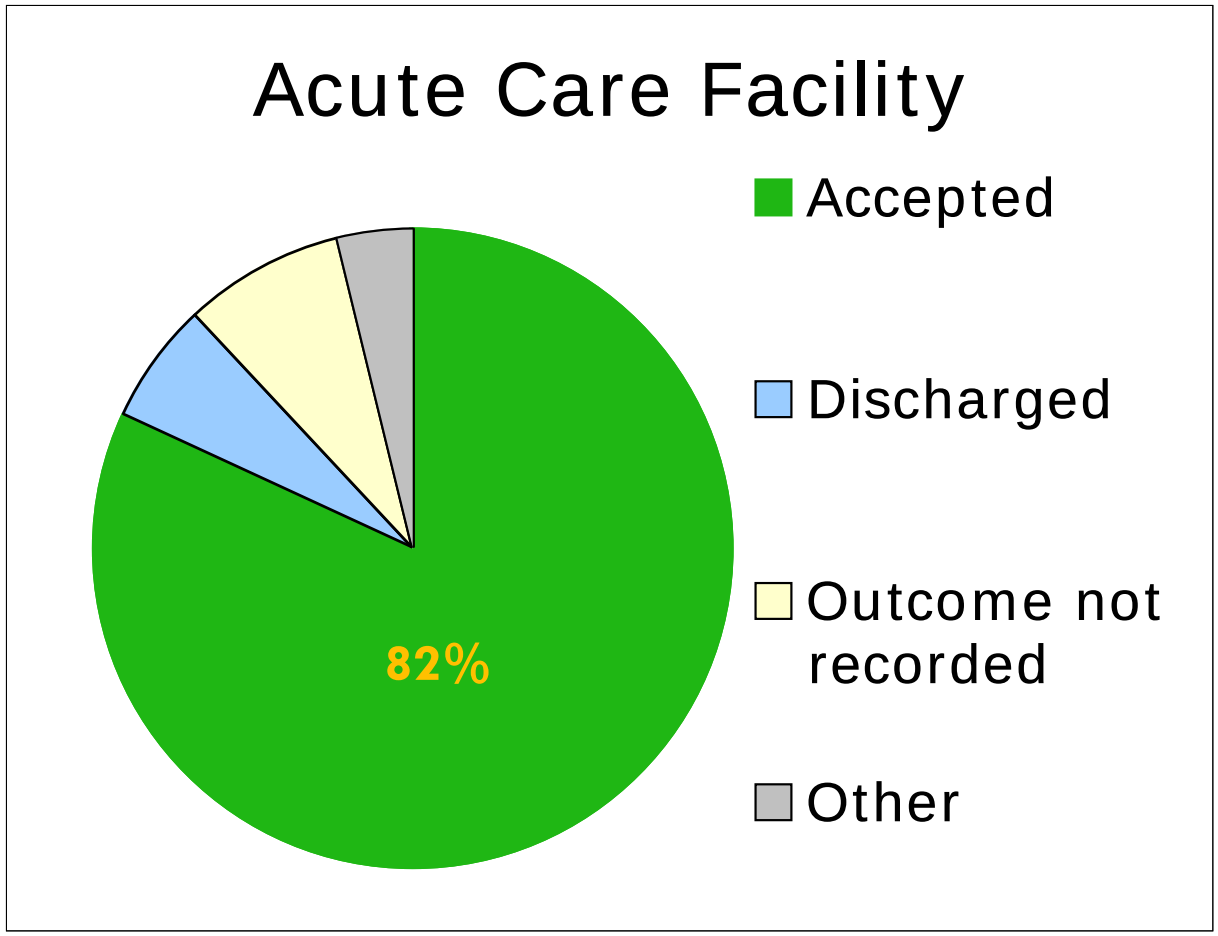
- Make a contract

  (See link to sample contracts provided on last slide)
- Hospital pays at "fair market value" services (as determined by them)
- Be sure to perform the terms of the contract

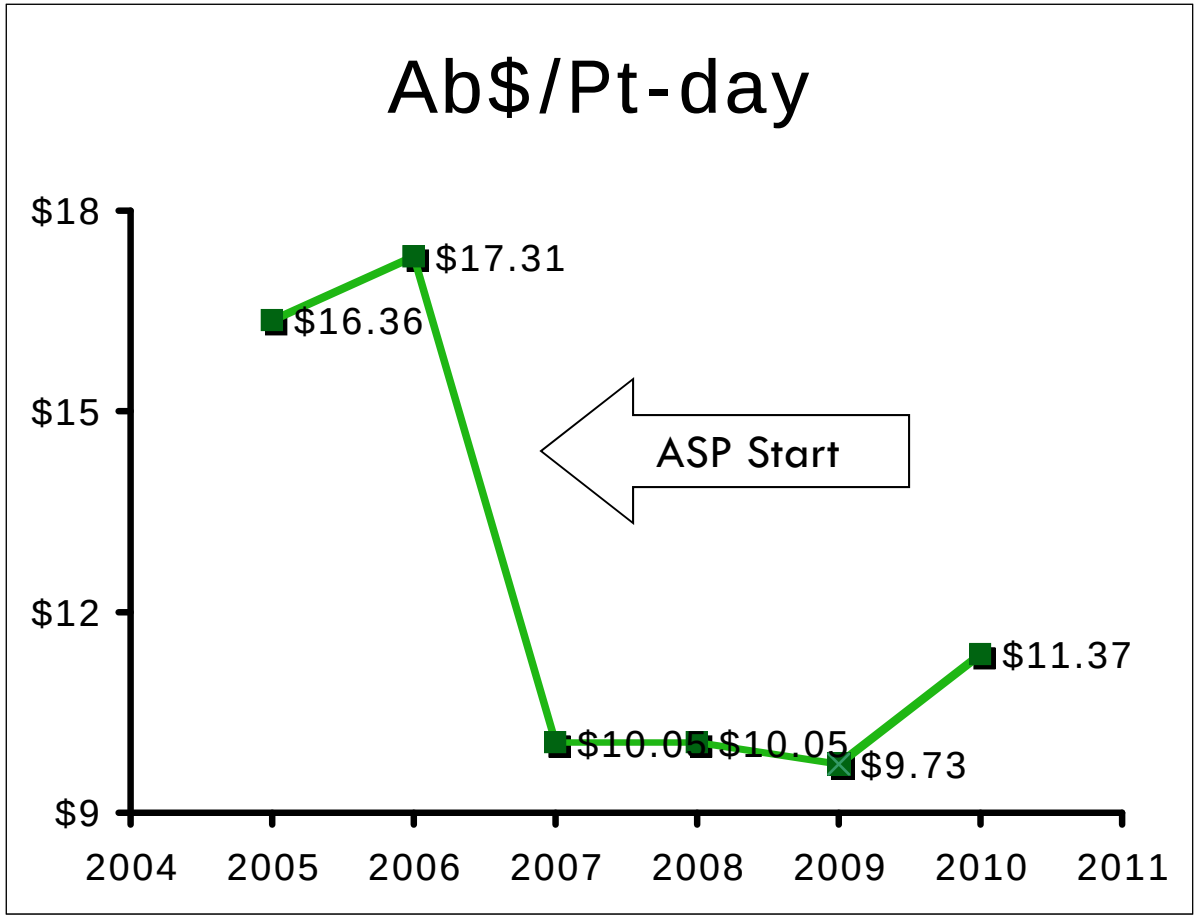
Maintaining your contract?

- Remember this: the average tenure of a hospital CEO is 3 years.
- Soon you will have to re-justify your program to a new CEO.
- Have baseline and annual data to measure the value of your ASP.

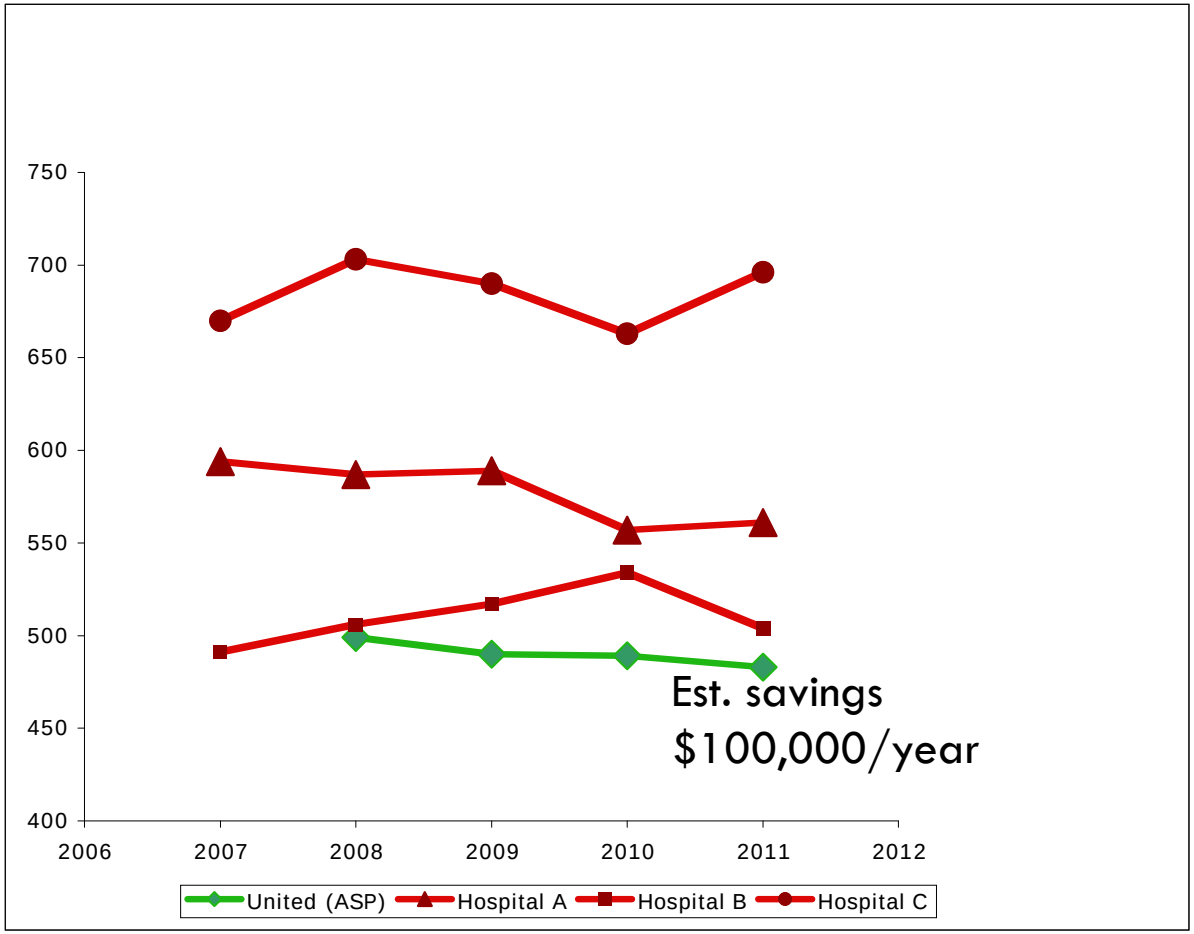
Acceptance of ASP Recommendations (2011)



ASP Sustained Lower Antibiotic Costs/Patient Day at LTACH

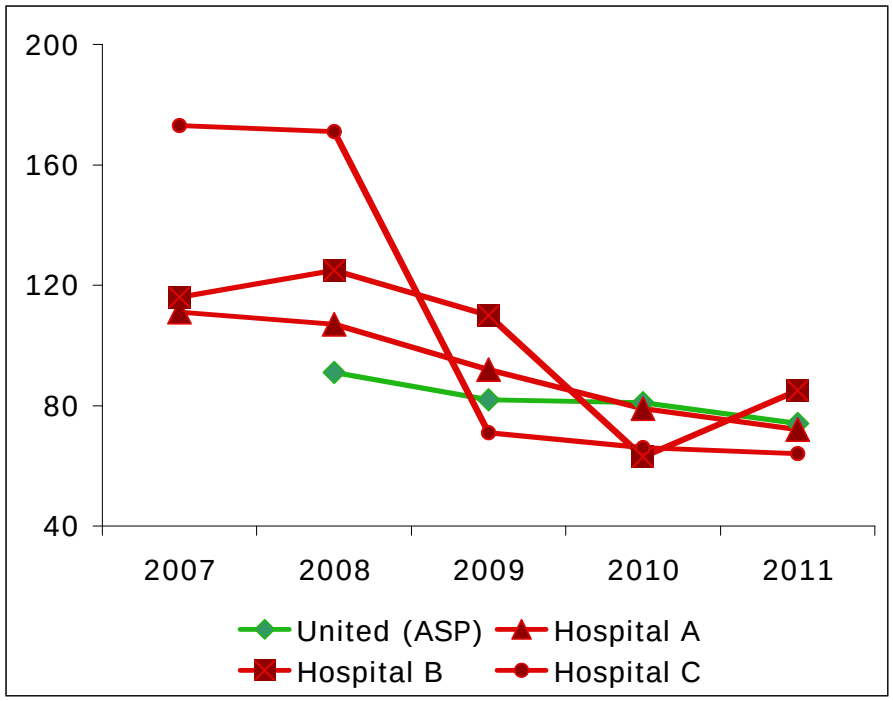


Compare Yourself with Other Hospitals in Your Health System

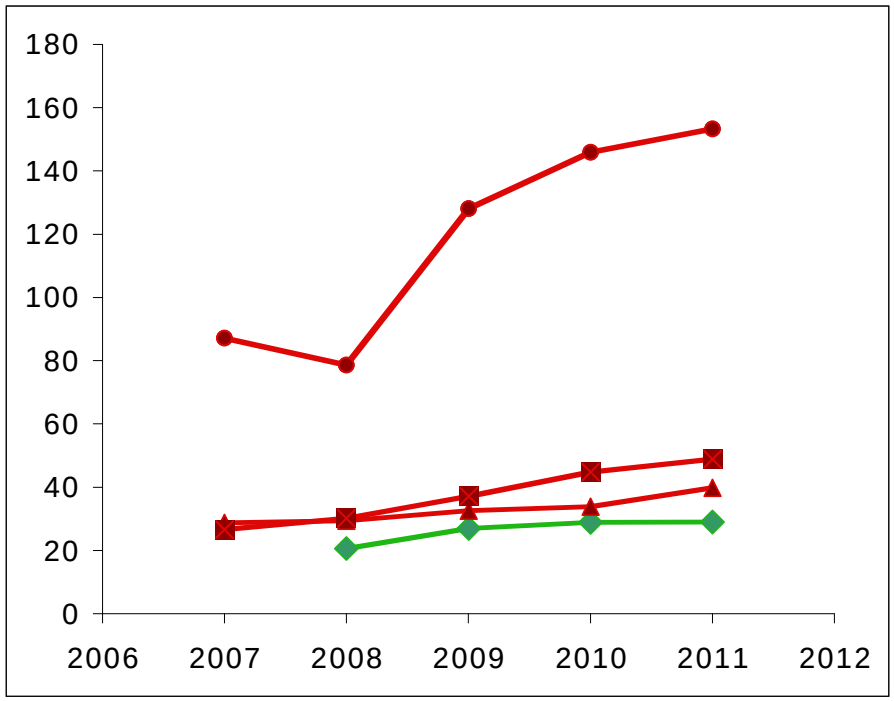


Days of Therapy/1000 pt-days

Comparison- Antibiotics Classes DOT/1000 pt-days



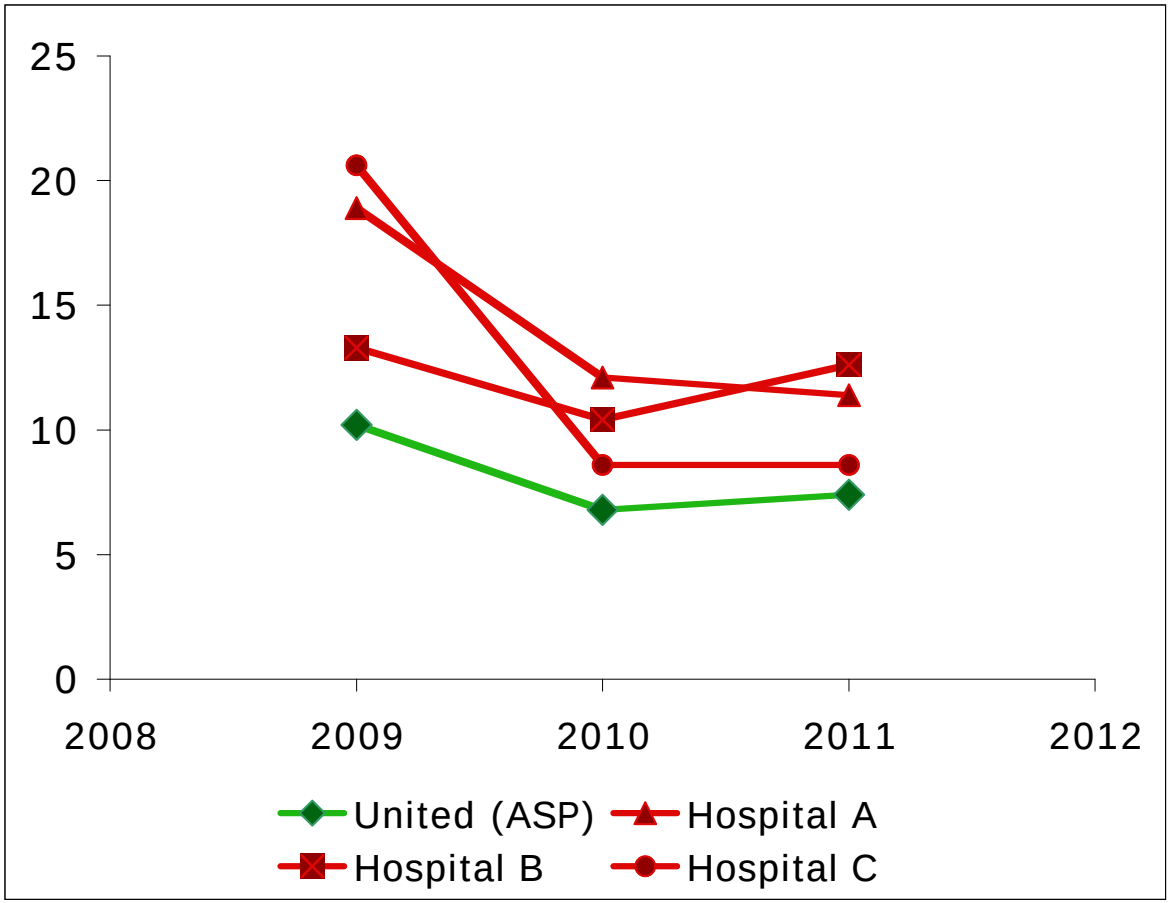
Fluoroquinolones



3rd Generation Cephalosporins

Comparison with Other Hospitals in System - C Diff Rates

Cases/ 10,000 pt-days



United Hospital saved $100,000 in 2011 (vs. mean rate; based on 20 cases prevented @$4500 per case)

Conclusion

We Have Made the Business Case

Business Case: On-line Resources

- **Greater New York Hospital Association Antimicrobial Stewardship Toolkit**

  www.gnyha.org/antimicrobial/toolkit or

  Summary of rationale and sample proposal:
  www.idologist.com/Blog/wp.../Generic_ASP_Business_Case1.doc

- ***Sample proposal*** **http://www.shea-online.org/Assets/files/kuper/ASP proposal_blinded_K__Kuper_.pdf**

- Davey P, Brown E, et al. Interventions to improve antibiotic prescribing practices for hospital inpatients. Cochrane Database Syst Rev. 2005. p. CD003543. [PubMed]

Questions/ Comments

Contact: Gary Kravitz MD
St. Paul Infectious Disease Associates
grkravitz@gmail.com