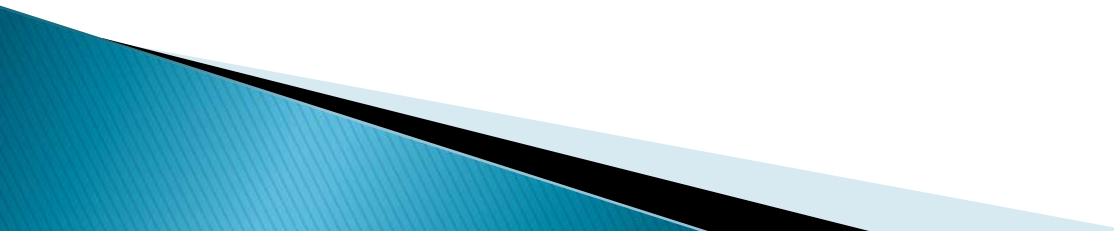


Antimicrobial Stewardship Building a Program

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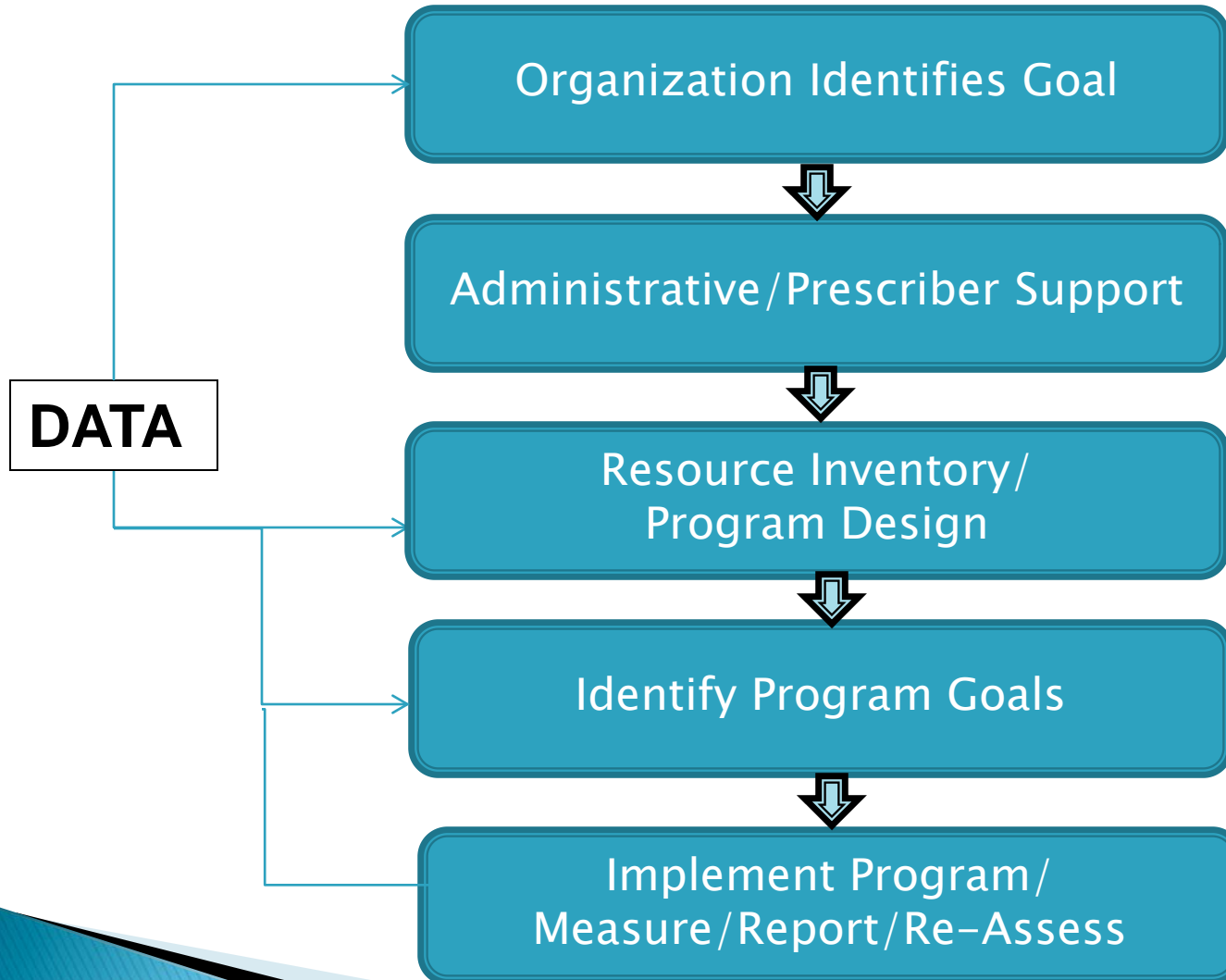
Housekeeping

- ▶ My goal today is to provide you with practical, real-world ideas to help you begin or improve your antimicrobial stewardship program (ASP)
 - ▶ Disclosures
 - Employee of Cardinal Health
 - ▶ Disclaimer
 - This presentation represents my views, opinions, etc. and not that of my employer
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Hospitals' Experience With Implementing a Stewardship Program



Stepwise approach



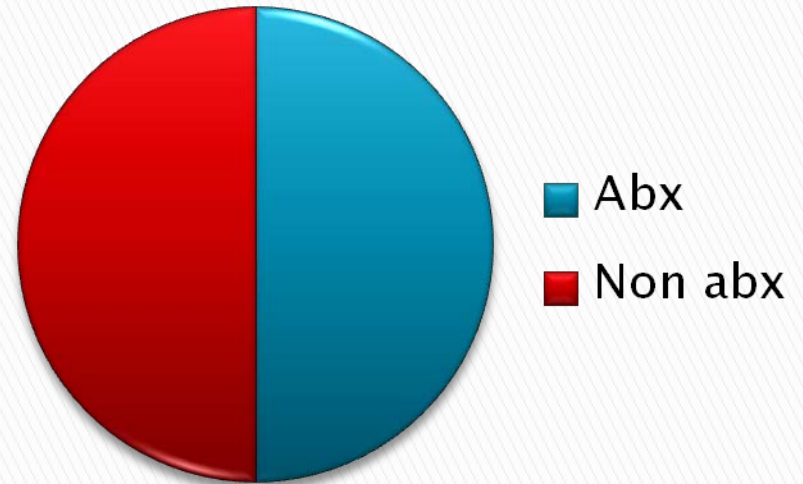
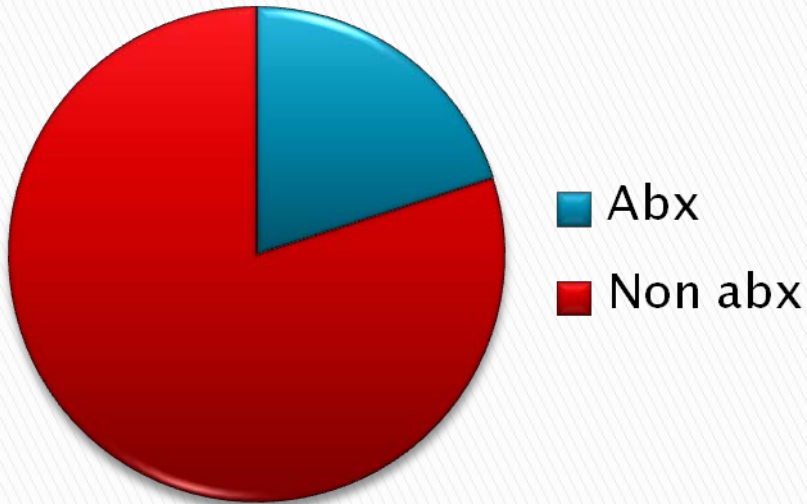
Organization Identifies Goal

- ▶ Someone or a group of “someones” has identified that the hospital needs to implement an ASP
- ▶ Common motivators
 - JCAHO is asking about it
 - State mandate (California)
 - *Clostridium difficile* outbreak
 - Reports of poor outcomes among patients with multi-drug resistant Gram negative infections
 - Cost savings

Why Stewardship Gets Financial Attention

Percent of Total Spend

Percent “Influenceable”



Administrative/Prescriber Support

▶ Administration

- If the C-suite knows what the terms “stewardship”, or “antibiotic resistance” means and, even better, uses it in their daily language, you are off to a great start
- Chief Medical Officer
- Chief Nursing Officer
- Chief Operating Officer

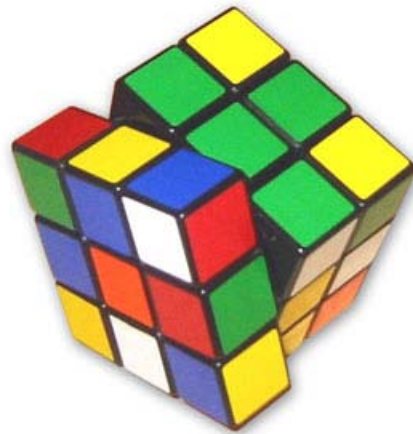
Administrative/Prescriber Support

▶ Medical Staff Support

- Identify a physician champion or physician/prescriber groups that will agree to have “peer to peer” discussions with outlying practitioners
- Ideally, it is nice if this includes an ID physician but....
 - What if your ID physician(s) is/are not engaged?
 - What if your ID physician(s) is/are opposed to a program?

Administrative/Prescriber Support

- ▶ What if your ID physician is a Rubik's cube?



- ▶ Maybe buy t- shirts?

ID Physician Resources (n=97)

Which of the following provide an accurate description or the Infectious Disease physician resources available at your hospital?	
We do not have ID physicians at our hospital.	42%
Our ID physicians are in private practice and round on a consultative basis only.	47%
Some or all of our ID physicians are employed full time by the hospital.	11%

Prescriber Support

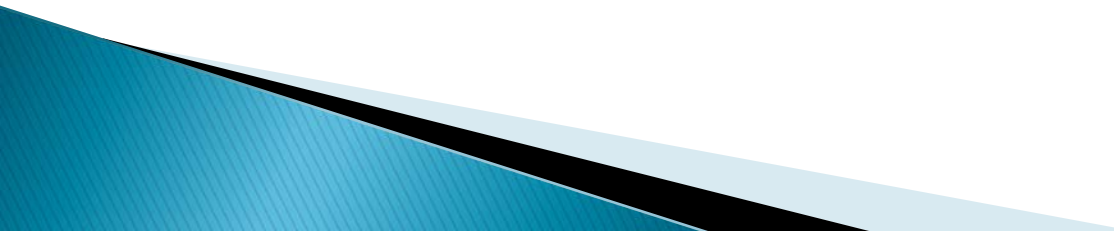
- Hospitalists and Emergency Room physicians
- Nurse Practitioners and Physician Assistants
 - LTACs
- Someone should broach the idea of compensation
 - \$ per hour
 - Annual stipend
 - Monthly fee
- Contractual obligation vs “just being nice”?

Resource Inventory/ Program Design

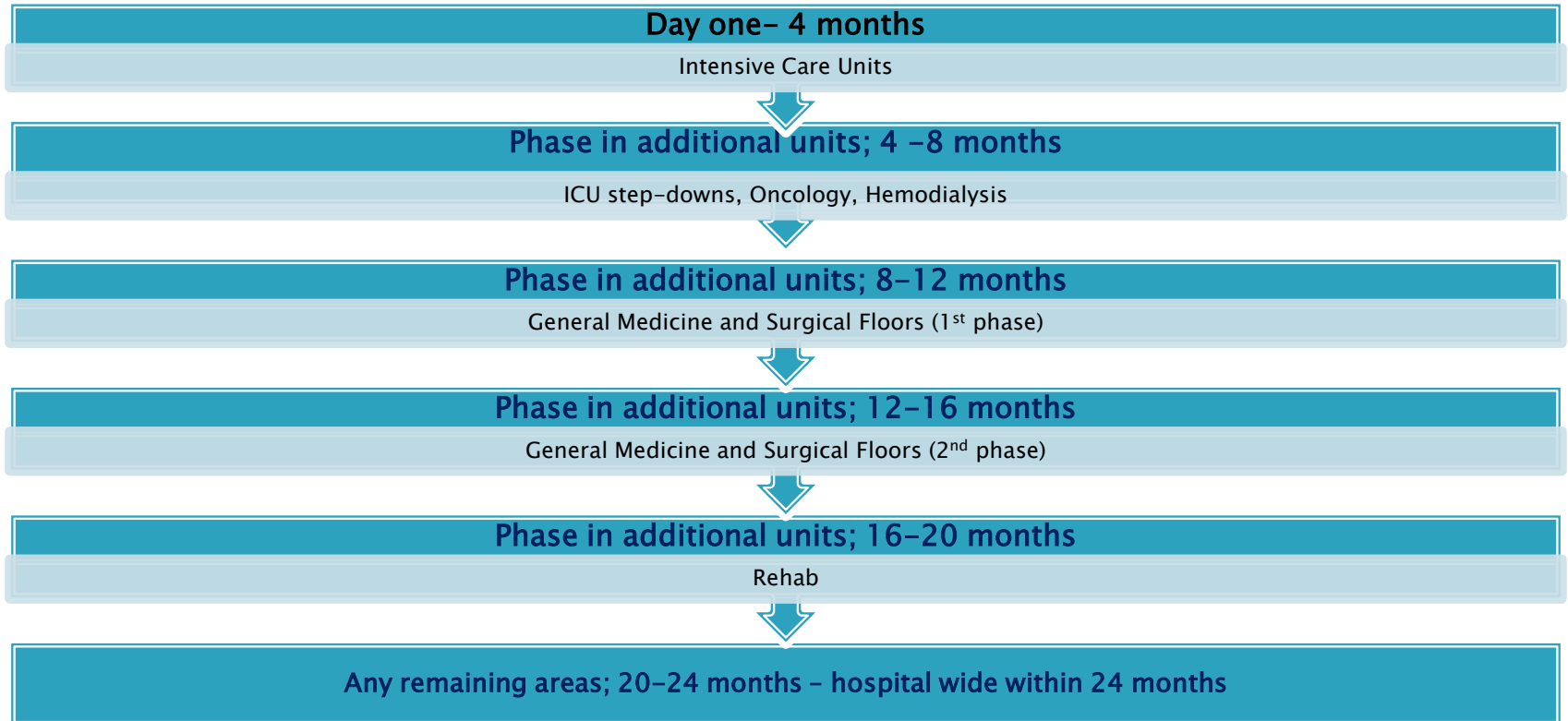
▶ Resources

- Think about what you have vs. need
 - Personnel
 - The most successful programs are inter-disciplinary
 - Look for program “extenders”
 - Nursing, Case Management, technicians
 - Maximize technology if you can
 - Tools
 - Intervention tracking
 - Other systems within the hospital
 - For example, look at Infection Control tools available
 - Build your own!!

Example Program

- ▶ ID physician, ID pharmacist rounds Mondays, Tuesdays, and Thursdays (most weeks)
 - ▶ ID physician and pharmacist available via pager M–F during normal business hours to address stewardship issues
 - ▶ Clinical and staff pharmacists available after hours and Friday–Sunday to address immediate patient care needs
 - ▶ Initial focus: patients on more than 2 antimicrobials, culture and sensitivity results review (focus on de-escalation, discontinuation, and drug–bug mismatches), discharge culture reviews, identification of issues and report back to committee.
- 

Example Timeline



Identify Program Goals

- ▶ Start with the basics
 - Low hanging fruit
 - Set manageable expectations
 - If you already have a program, set your new goals “one level up”
- ▶ How will you know (objectively) if your program is successful?
 - Wrong answer “I gotta a feeling...”

Identify Program Goals

▶ Examples

- Reduction in overall antibiotic utilization by 20%
- Antibiotic start and stop dates will be visible at the point of care
 - In 50% of patient charts by xx/xx/11
 - In 80% of patient charts by xx/xx/12
- Based on a review of 100 general medical and surgical patients who received ≥ 3 antibiotics, only 30% of patients had therapy de-escalated after culture and susceptibility reports were returned.
 - **Our goal is to improve this number to 60% by year end**

Identify Program Goals

▶ Examples

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Identify Program Goals

- ▶ **Pick stuff you can fix**
 - Please don't make the blanket statement that you are going to decrease ALL antibiotic resistance



<http://www.idsociety.org/Content.aspx?id=11840>



Emerg Inf Dis 2007;13(6):838-46

Let's take a brief moment to
hear from our sponsor

DATA!!!!!!!

Where to Find Data

- Pharmacy
 - Wholesaler purchase reports
 - Antibiotic cost per patient day or per discharge
 - Utilization data from hospital computer system/finance
 - Defined daily dose per 1000 patient days
 - Order entry data (days of therapy)
- Medication use AND disease state evaluations
- Medication safety and adverse drug reactions
- Infection prevention data
 - Commercial systems
 - Home grown

Where to Find Data

- Lab/Microbiology
 - Blood culture contamination rates
 - MIC trending reports from automated testing system
 - Linezolid, vancomycin, and daptomycin vs MRSA
 - Carbapenem vs *Pseudomonas aeruginosa*
 - Line listings for key resistant organisms
 - ESBLs
 - MRSA
 - CRE
 - Fall 2008 – “Me: I think you have KPCs”
 - “Microbiologist: No we haven’t seen it”
 - Spring 2009 – Pharmacist “ We have a patient with a KPC”
 - Antibiograms

Critical Review of Antibiogram

- ▶ Community hospital in Northeast
- ▶ High level of antibiotic resistance

Resistance pattern	Original		First isolate	
	n=	% R	n=	% R
Oxacillin resistant <i>S. aureus</i>	607	66%	317	58%
Levofloxacin resistant <i>K. pneumoniae</i>	651	75%	219	58%
Tobramycin resistant <i>P. aeruginosa</i>	510	22%	186	22%

- ▶ Make sure resistance changes are “real”
- ▶ Know where the data is coming from
- ▶ Be aware of impact of breakpoint changes
 - Fortunately, there is a lag time with implementation

Implement Program

- ▶ Kristi's cliché's of stewardship implementation
 - Rome wasn't built in a day
 - Walk before you run
 - That's a different problem for another day
- ▶ Complete training and education
- Most hospitals are more successful in implementing the stewardship program in stages vs. all at once
- Market your program

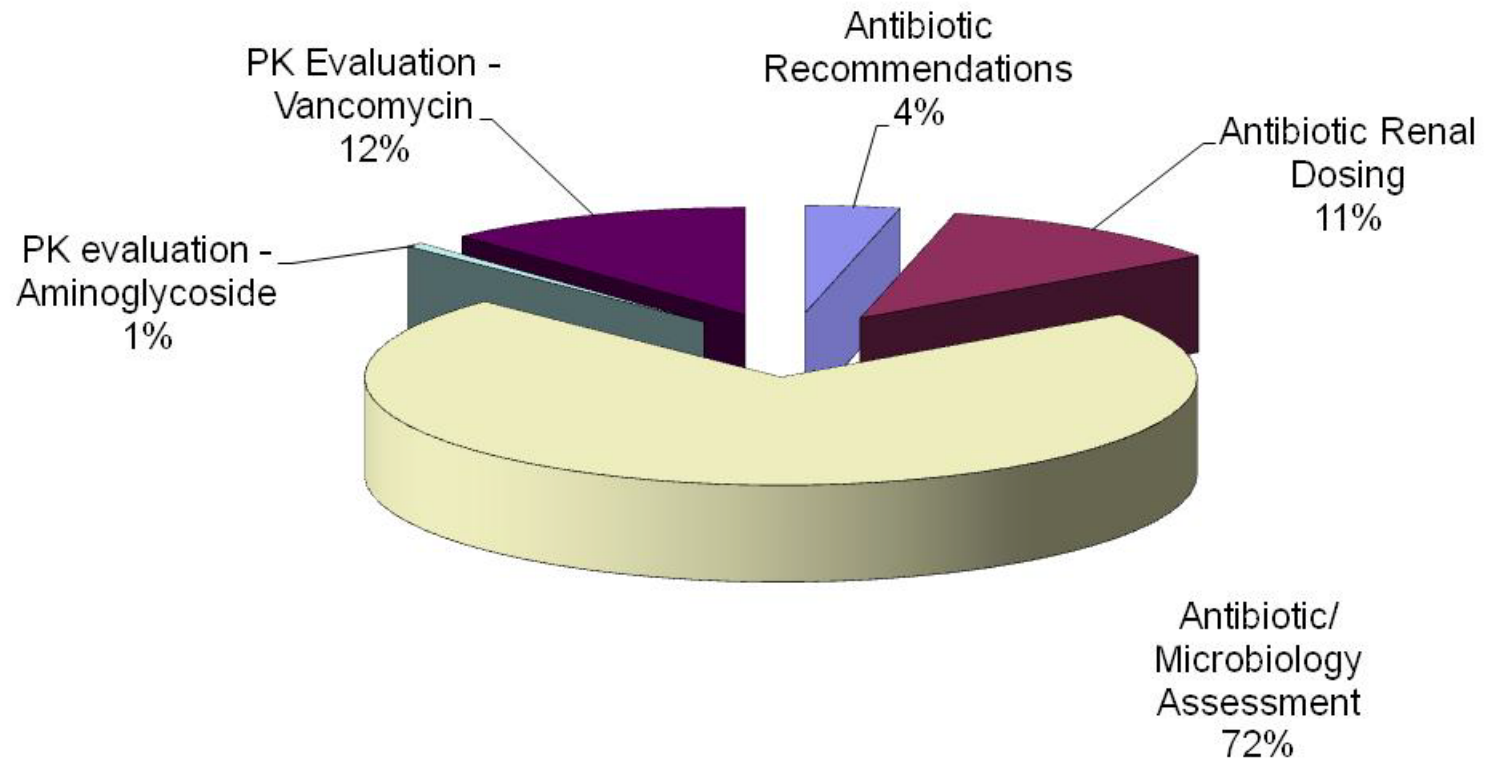
Measure/Report/Re-Assess

- ▶ Pick measurable but manageable outcomes
- ▶ Set frequency to report and re-assess
- ▶ Don't be afraid to make changes

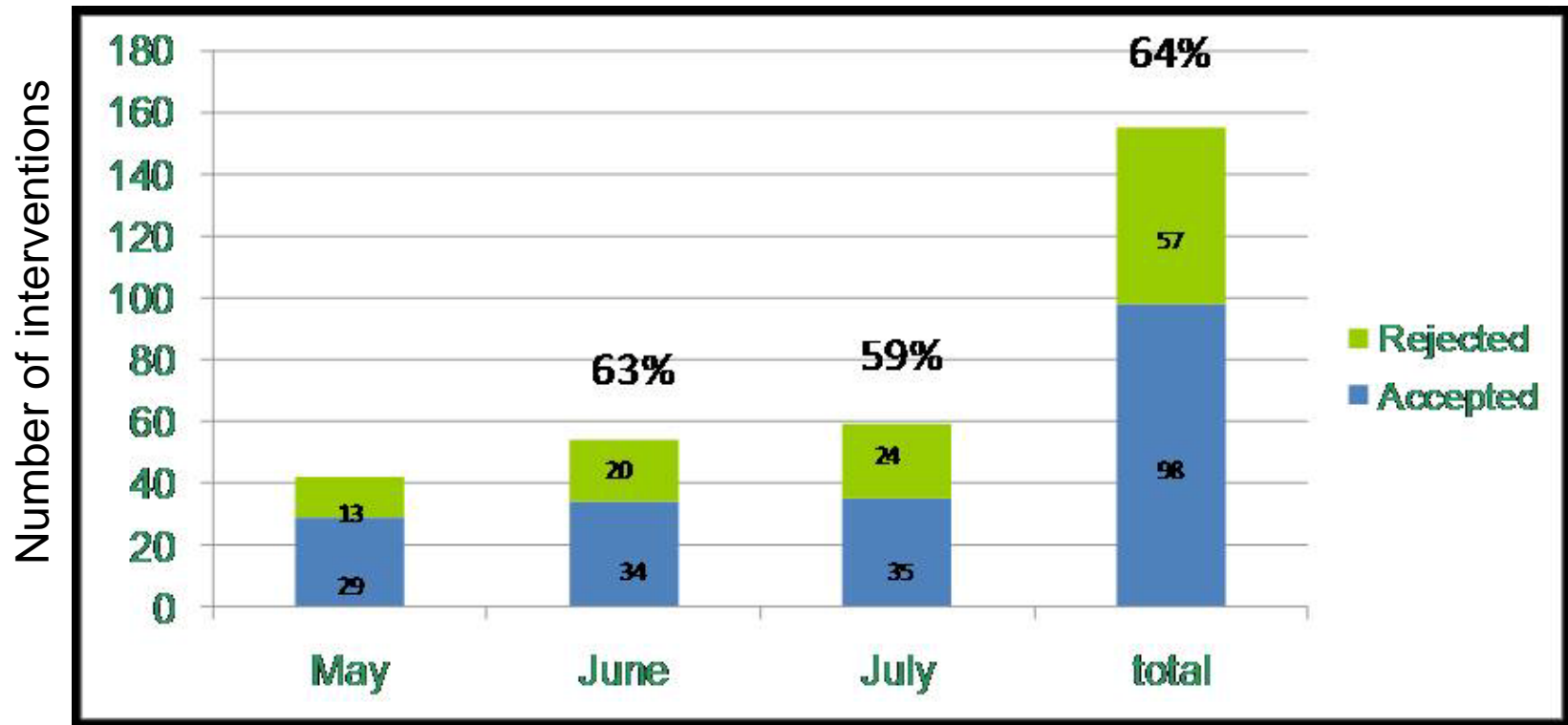
Breakdown of Interventions

1st Quarter 2011

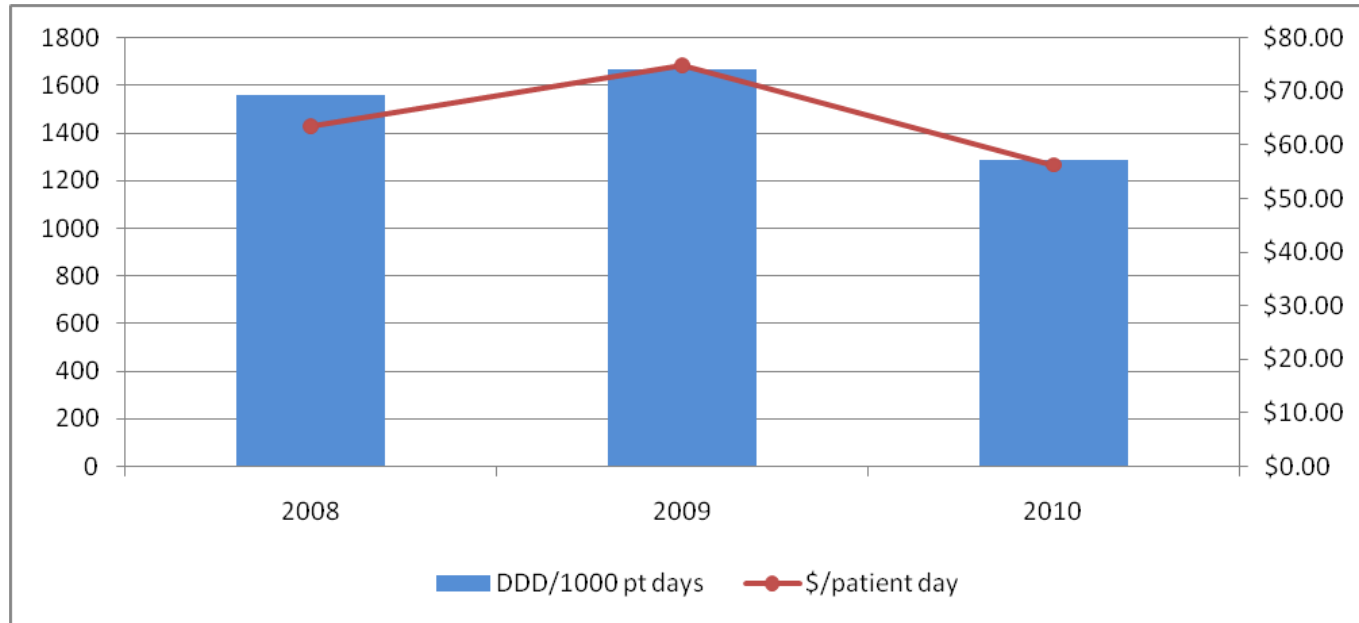
Antimicrobial Stewardship Interventions by Class



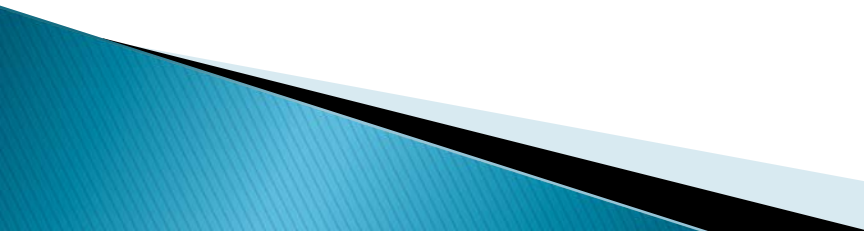
Intervention Acceptance Rate



Results



Be Aware of Stewardship Killers

- ▶ Poor diagnostic practices
 - ▶ High blood culture contamination rates
 - ▶ Poor compliance with handwashing
 - ▶ Increased hospital acquired infections
 - ▶ Poor compliance with hospital infection control practices
 - ▶ Relying on one person to “be” the stewardship program
 - ▶ Antagonists
- 

Stewardship Resources

On the Web

- ▶ Society of Infectious Diseases Pharmacists
 - www.sidp.org
- ▶ Johns Hopkins Antibiotic Guide
 - <http://www.hopkinsguides.com/hopkins/ub>
- ▶ Nebraska Medical Center ASP Homepage
 - <http://www.nebraskamed.com/careers/education/asp/>
- ▶ University of Kentucky – Chandler Medical Center
 - <http://www.hosp.uky.edu/pharmacy/amt/default.html>
- ▶ WHO DDD
 - http://www.whooc.no/atc_ddd_index/
- ▶ CDC Get Smart
 - <http://cdc.gov/getsmart/healthcare/improve-efforts/index.html>
- ▶ SHEA
 - <http://www.shea-online.org/GuidelinesResources/FeaturedTopicsinHAIPrevention/AntimicrobialStewardship.aspx>

In Print

- ▶ *Clin Infectious Diseases* 2011;53(Supplement 1)
- ▶ Antimicrobial Stewardship Programs: Interventions and Associated Outcomes. *Expert Rev Anti Infect Ther.* 2008;6(2):209–222.
- ▶ Antimicrobial Resistance – Problem Pathogens and Clinical Countermeasures (Owens RC, Lautenbach E, editors)
- ▶ Antibiotics Simplified. (Gallagher JC, MacDougall C, editors)

Sources of Comparison Data Pharma Sponsored

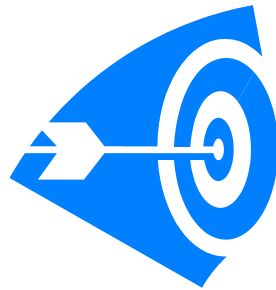
Name (Sponsor)	Data Source	Website	Comments
T.E.S.T – Tigecycline Evaluation and Surveillance Trial (Pfizer, Formerly Wyeth)	Isolates are collected from 130 global centers. Micro testing performed on site and then info entered into a proprietary database	http://testsurveillance.com/index.php?view=welcome&template=main	Susceptibility data limited to drugs that have similar spectrum of activity to tigecycline. Access is free but must register.
Susceptibility of Gram Positive Pathogens (Cubist)	JMI Labs Central Data Repository	http://www.gp-pathogens.com/data/default.cfm	Data is independently maintained by JMI Labs, one of the leaders in antibiotic susceptibility testing. Site only has gram positive info.
MYSTIC –Meropenem Yearly Susceptibility Test Information Collection (Astra Zeneca)	JMI Labs Central Data Repository	Not available	Data can only be found in published articles. Not searchable.
TRUST - Tracking Resistance in the US Today	Focus Technologies Central Data Repository	Not available	Website only contains info on <i>S. pneumoniae</i> resistance patterns but TRUST surveillance tracks Gram negative also. May be able to access more info through Ortho McNeil.

Sources of Comparison Data Non-Pharma

Name (Sponsor)	Website	Comments
ABC - Active Bacterial Core Surveillance – CDC	http://www.cdc.gov/abcs/reports-findings/surv-reports.html	Contains annual susceptibility reports for Group A and B Strep, MRSA, <i>N. meningitidis</i> , and <i>S. pneumoniae</i> , and <i>H. influenzae</i> (through 2009).
CDC Antimicrobial Resistance homepage (CDC)	http://www.cdc.gov/drugresistance/index.html	Cannot query. Real time data not available.
JMI Laboratories	http://jmilabs.com/default.cfm	One of the leaders in antimicrobial testing. Posters and abstracts that they have presented are on this website under the Scientific presentations website but are difficult to search for a particular resistance pattern.
National Healthcare Safety Network	http://www.cdc.gov/nhsn/	Cannot query. Real time data not available.

In Closing

- ▶ An antimicrobial stewardship can be implemented in any facility regardless of resources
 - May just need to start small
- ▶ Must be interdisciplinary
- ▶ If you work through these steps, you will be right on target



Contributors

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