Gulf/middle East/ Africa BSAC Collaborative Conference

Workshop B

How to Identify AMS Priorities and the ‘Low Hanging Fruit’

Faryal Khamis M.D.
Senior consultant Infectious Diseases
Chairperson, Antimicrobial Stewardship Committee
Royal Hospital, Muscat
Oman

AMS Priorities

Effective AMS program requires a range of **interventions**

- Needs
- Resources

How To Identify Priority Areas In Which To Focus ASP

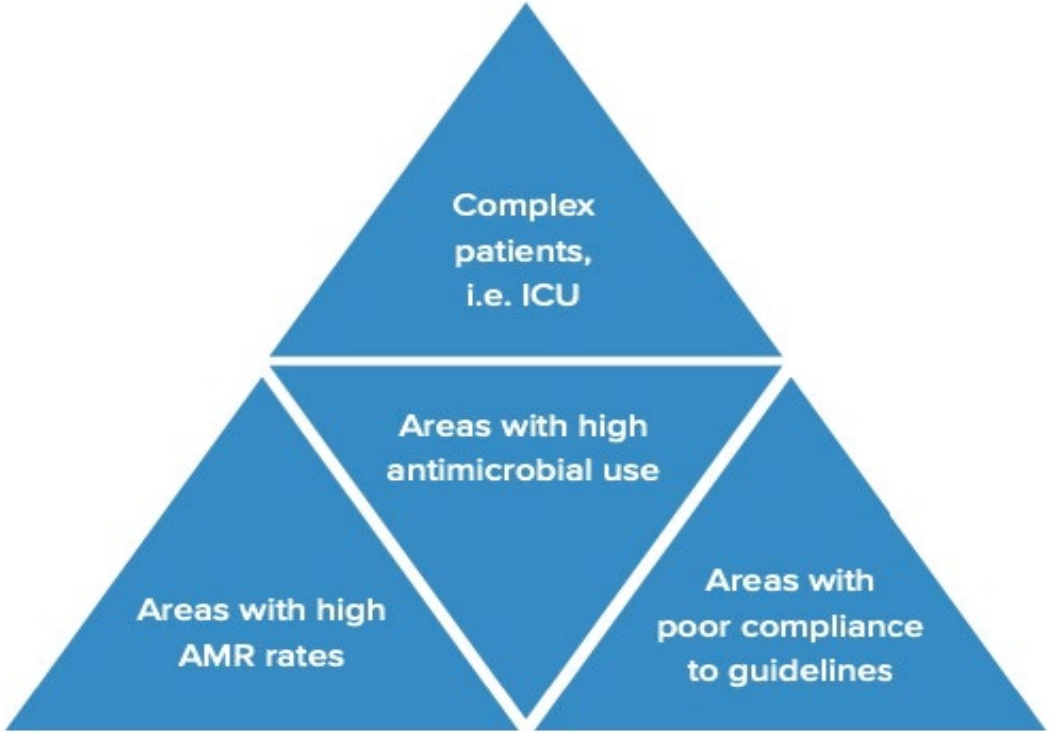


FIGURE 5
Suggested priority areas for targeting ASP

A successful ASP

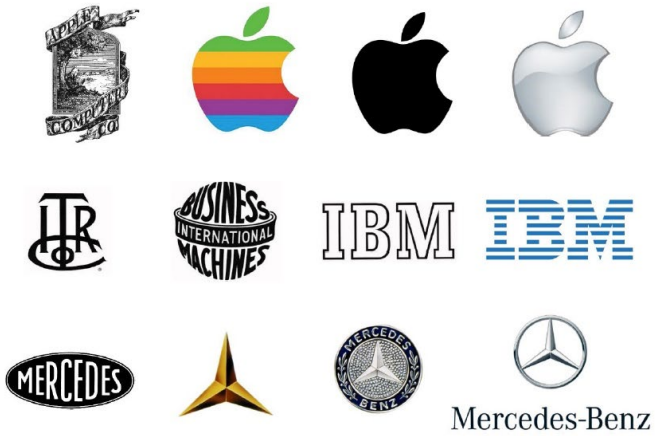
- Continually reviewed and adjusted according to changes in priority over time

✓Point prevalence surveys

✓Surveillance of AMR

✓Surveillance of antimicrobial use

- Benchmarking with peers



Point Prevalence Surveys (PPS)

- These data can be used in an audit process to provide structured feedback to prescribing teams and to define areas for improvement

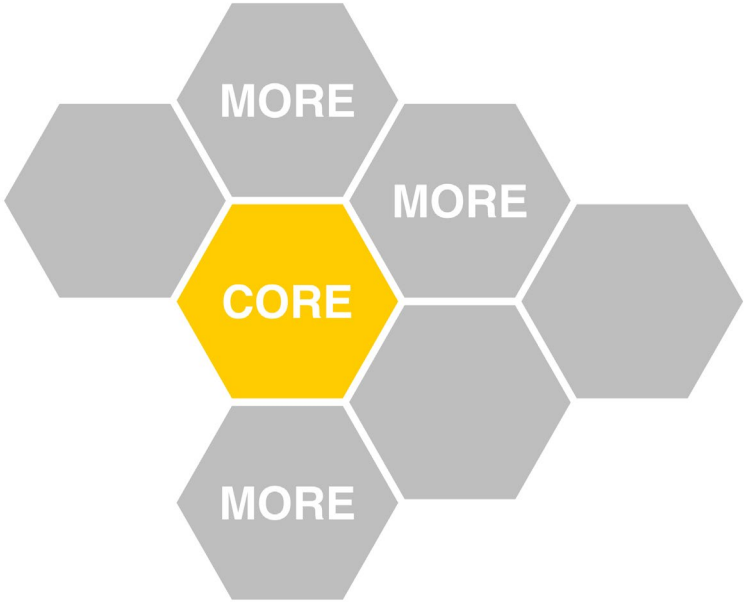
Ansari et al., 2009; Seaton et al., 2007, Malcolm et al., 2012

Table 10. Overview of prescribing from baseline PPS (May 2009) and follow up PPS (September 2011).

Measure	Baseline PPS (May 2009)		Follow up PPS (Sept 2011)
	Scotland Acute Hospitals	Europe	Scotland Acute Hospitals
Number of patients surveyed	7,573	73,060	11,604
Number of patients (%) prescribed antimicrobials	2,289 (30.2%)	21,197 (29.0%)	3,728 (32.3%)
Number of patients (%) prescribed single antimicrobial	1,432 (62.6%)	14,403 (67.9%)	2,268 (60.8%) ↓ ☺
Number of prescriptions (%) for parenteral antimicrobials	1,731 (51.8%)	17,947 (60.5%)	2,147 (47.8%) ↓ ☺
Number of prescriptions (%) with indication recorded in notes	2,538 (75.9%)	22,456 (75.7%)	3,811 (86.8%) ↑ ☺
Number of prescriptions (%) compliant with local policy	1939 (81.0%)	17,223 (82.5%)	2,245 (82.8%) ↑ ☺
Number of surgical prophylaxis prescriptions (%) with duration single dose	146 (49.3%)	927 (27.0%)	287 (59.5%) ↑ ☺
Number of surgical prophylaxis prescriptions (%) with duration = 1 day	57 (19.3%)	723 (21.1%)	81 (16.8%) ↓ ☺
Number of surgical prophylaxis prescriptions (%) with duration >1 day	93 (31.4%)	1783 (51.9%)	114 (23.7%) ↓ ☺

Adapted from Malcolm W, Nathwani D, et al. Antimicrob. Resist. infect. Control. 2012;2:3.

ASP Interventions



- ✓Core interventions
- ✓Supplemental interventions

Antimicrobial Stewardship Interventions

Core

- Formulary restriction
- Prospective audit feedback

Supplemental

- Education
- Guidelines and clinical pathways
- Streamlining de-escalation
- Dose optimization
- Parenteral to oral conversion
- Computer-assisted decision support

Dellit TH, et al. *Clin Infect Dis* 2007;44:159-77

Core Interventions

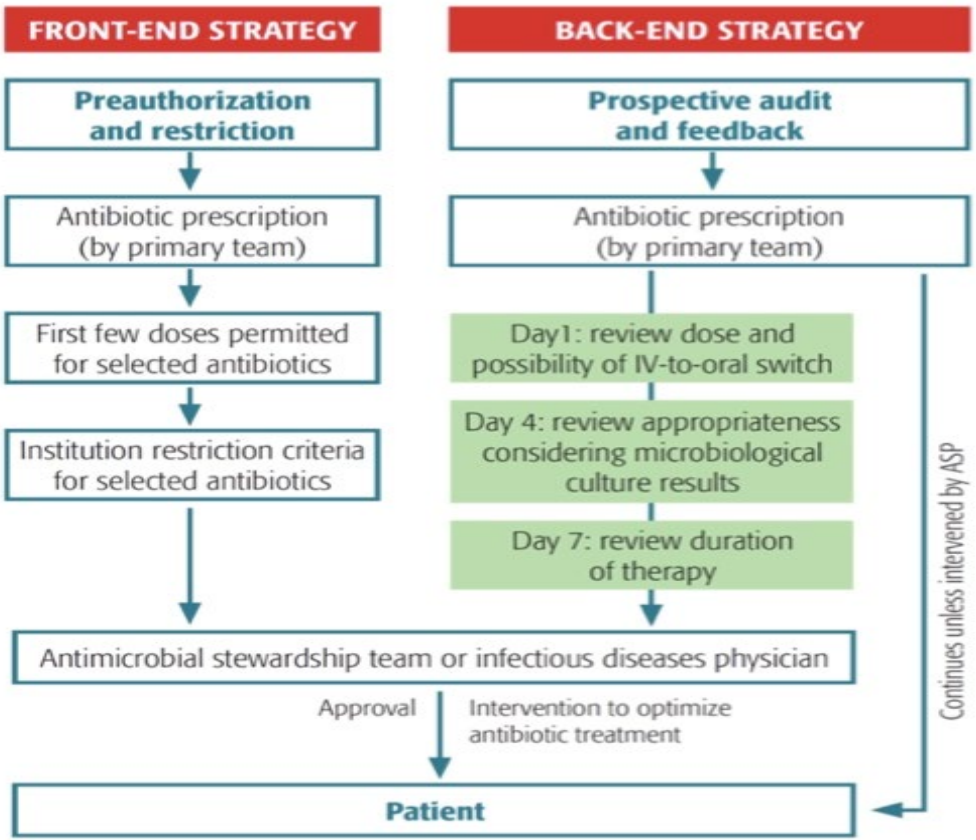


FIGURE 9
How pre-authorisation of restricted antimicrobial agents and prospective audit and feedback can be used as part of an ASP(3). Figure adapted from Chung GW et al. Virulence 2013;4(2):151–157

Dellit et al., 2007

Back End Strategy

Prospective Audit and Feedback

What Can Be Reviewed?

Table 9. Antimicrobial Review Methods.

COMMONLY USED

- Review of indication for antibiotic and compliance with policy/guideline/formulary ; note any recording of exception
- Review of appropriateness of antibiotic choice, dose, route and planned duration; review of drug allergy, review of agents that may provide duplicative therapy [potential overlapping spectra]
- Review of directed therapy based on culture and susceptibility test results
- Potential for conversion from IV to oral route
- Review requirement for therapeutic drug monitoring
- Review any antibiotic related adverse events

LESS COMMONLY USED AND DEPENDENT ON LOCAL RESOURCES

- Clinical review by AST of specific resistant pathogens [e.g MRSA] or site of infection [e.g blood stream infections]
- Specific review of high cost/high use/novel agents
- Review of optimal dose [PK/PD] in relation to dose and frequency; renal adjustment, need for extended infusion, review of any potential drug interactions
- Review of directed therapy based on microscopy or PCR or other rapid tests *
- Review of empiric or directed therapy based on biomarkers *

* The lack of diagnosis and delay in microbiology remains a significant barrier to good stewardship and may be a save of high cost. See Figure 10, page 27.

Adapted from Johannsson B. et al. Inf. Control. Hosp. Epidemiol. 2011; 32:367-374.

Pre-authorisation	Prospective audit and feedback
Advantages	
Prevents unnecessary/ inappropriate initiation of antibiotics	Increases visibility of ASP and helps to form professional relationships
Ensures optimal empirical therapy	Maintains autonomy of prescribers
Prompts review of clinical parameters, patient history and prior cultures before initiating antimicrobial therapy	Frequency can be tailored based on resources available to the ASP
Potential to decrease antibiotic expenditure	Facilitates prescriber education
Facilitates a rapid response to antibiotic shortages	Accommodates review of extended antimicrobial therapy
Gives Infection Team direct control over antibiotic use	Allows for de-escalation of antibiotics once sensitivities available

Disadvantages	
Has little effect post empirical therapy	Compliance voluntary
Loss of prescriber autonomy	Labour intensive
May delay initiation of therapy	Success is dependent on how feedback is communicated to prescribers
Potential for variation in advice depending on the team member consulted	Can be difficult to de-escalate if patient is responding
Real-time resource intensive	IT support needed to identify patients to target
Potential for incorrect / omitted details in an attempt to bias antibiotic choice	Reductions in targeted antibiotic use may not be immediate

TABLE 1
Comparison of pre-authorisation versus prospective audit and feedback of restricted antimicrobials(2)

Back-end strategies – Prospective Audit and Feedback

Although more labor intensive, are:

- More widely practiced
- More easily accepted by clinicians
- Provide a higher opportunity for educational opportunities.
- They probably provide a more sustained impact of improving the overall quality of antimicrobial prescribing

Chung et al., 2013

Audit and direct feedback to prescribers? Who can do it ?

- Infection specialist
- Specialist pharmacist
- Specialist nurses
- Clinical pharmacists

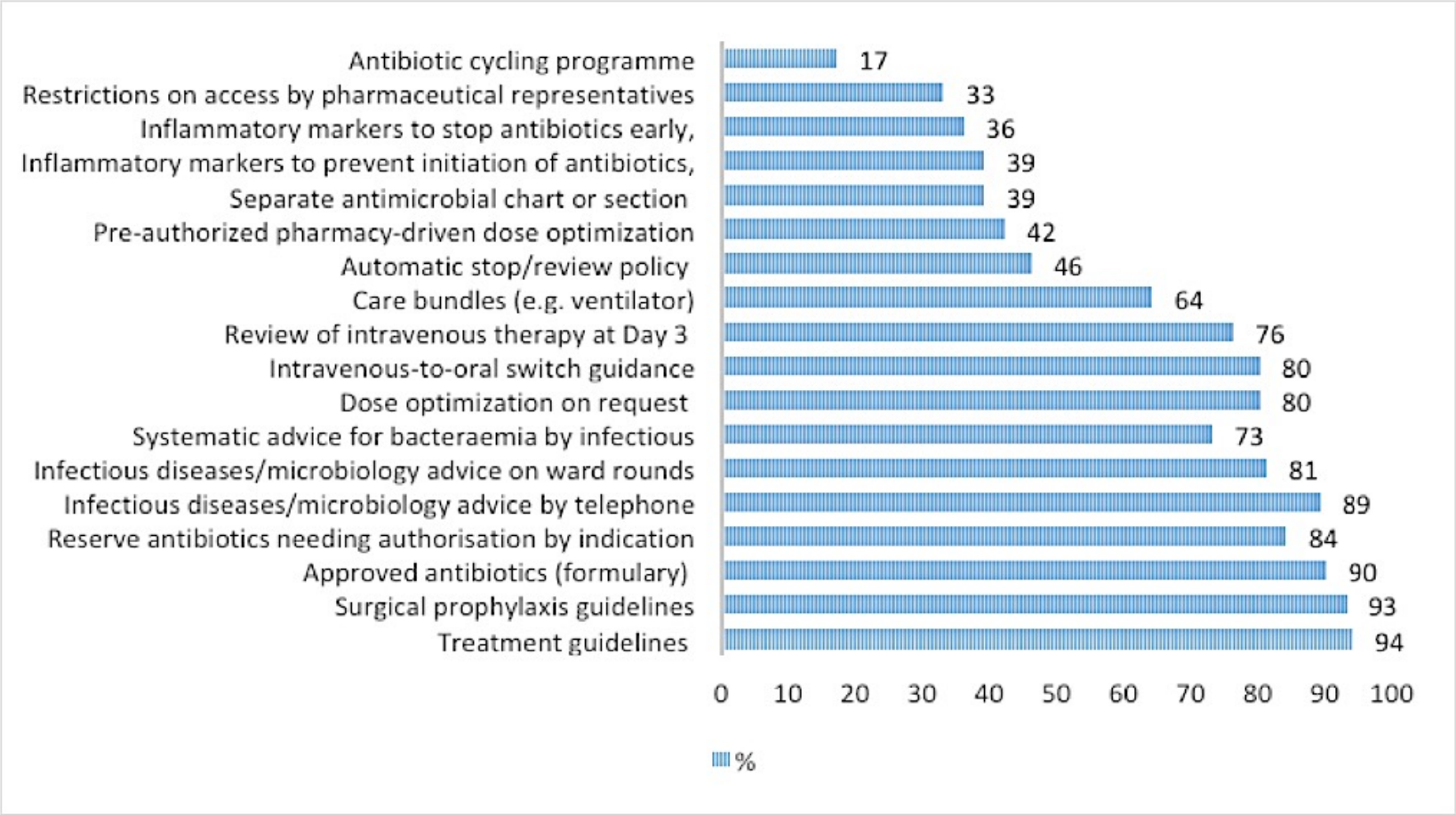


FIGURE 7
Results of a global survey on types of AMS interventions employed as part of an ASP

Interventions that Work- Strongest Evidence

Preauthorization and/or Prospective audit with feedback

Reduce the use of antibiotics with a high risk for *CDI*

Reduce antibiotic therapy to the shortest effective duration

PK monitoring with dose adjustment for aminoglycosides

Switching from intravenous to oral when feasible

McQuillen DP, et al. *CID* 2008;47: 1051-1063

ASP Interventions with weak recommendation and low-quality supporting evidence

- Didactic education
- Facility-specific clinical practice guidelines for common infectious syndromes
- Interventions to improve antibiotics that target specific infections
- Use of computerized clinical decision support systems
- Implementation of allergy assessment in patients with h/o of beta-lactam allergy
- Antibiograms
- Use of rapid viral testing for respiratory pathogens
- Use of rapid pathogen diagnostic testing of positive blood cultures
- Use of procalcitonin to guide antibiotic decisions for adults in intensive care
- Improvement in use and outcomes of antifungal therapy in immuncomp. patients

What are some of the “Low Hanging Fruit” ASP initiatives you have or could implement in your hospital?

Low Hanging Fruit

- Definition

The fruit that grows on lower branches and is usually more abundant and easier to pick

[http://www.wisegeek.com/ what-is-low-hanging-fruit.htm}

Low Hanging Fruits - ASP

- Selecting the most obtainable targets rather than confronting more complicated management issues in a resource limited setting

✓ easy to implement
✓ no additional resources
✓ achieved fast
✓ cost savings

Goff D et al. Is the “Low-Hanging Fruit” Worth Picking for Antimicrobial Stewardship Programs? Clinical Infectious Diseases 2012;55(4):587–92

Low Hanging Fruits

- Antimicrobials
- ✓Expensive
- ✓Heavily used
- ✓Broad-spectrum
- Syndromes (e.g. CAP or asymptomatic bacteriuria)
- Services (e.g. ICU)

Show the fruit to relevant stakeholders

- don’t decide on an intervention before you identify the problem(s)
- engage the stakeholder in the process of identifying an intervention
- don’t burst the balloon
- decide how you will measure success of your intervention

Identifying Antimicrobial Prescribing Problems

4 basic problems with prescribing:

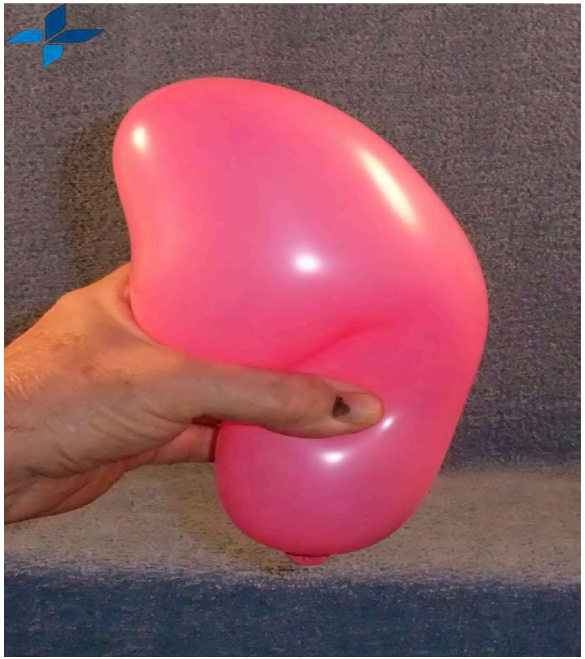
- Starting when there is no need
- Not stopping
- Treating too broadly (esp. After culture results are available)
- Treating too narrowly

Engage stakeholders in your interventions

- Exclusion
  ➥Discovery
  ➥Distress
  ➥Distance or destructive behaviour

Squeezing the balloon

- targeting a certain antimicrobial or class that you perceive is “bad” usually results in squeezing the balloon



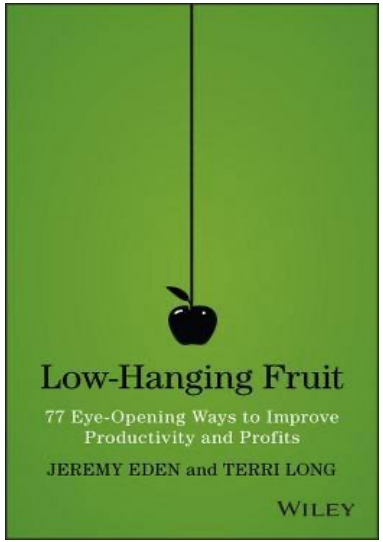
Measuring success/ failure

- Structure measures
- Process measures
- Outcome measures

“Low Hanging Fruit” Formulary Restrictions

Highly effective approach for ASPs and a good start

- Pre-authorization by an ID physician or pharmacist
- Appropriate use criteria to assist prescribers in their antimicrobial selection



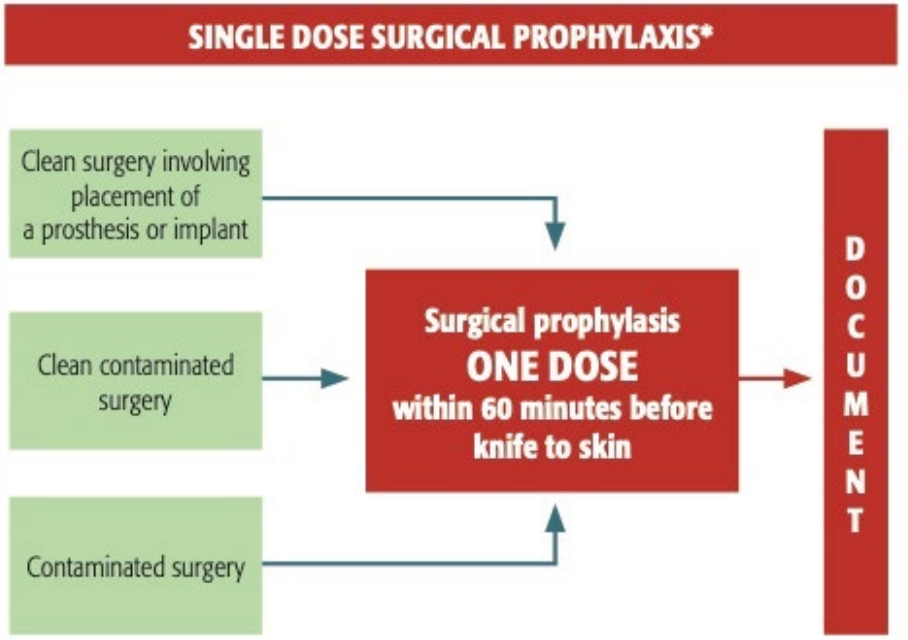
ADVANTAGES OF FRONT-END STRATEGIES

Immediate reduction in use and Timely de-escalation of antibiotics expenditure of restricted antibiotics

“Low Hanging Fruit”

Pre operative Surgical Prophylaxis

Figure 20. Start Smart … Then Focus approach.



* A repeat dose dose of prophylaxis may be required for prolonged procedures or where there is significant blood loss. A treatment course of antibiotics may also need to be given (in addition to appropriate prophylaxis) in cases of dirty surgery or infected wounds. The appropriate use and choice of antibiotics should be discussed with infection specialists for each case.

“Low Hanging Fruit” IV to Oral Conversions

- Protocol or guideline based on patient’s infection status (eg, WBC, temperature)
- Authority for pharmacists to automatically convert antimicrobials per protocol

AN INTRAVENOUS TO ORAL SWITCH SHOULD BE CONSIDERED WHEN A PATIENT MEETS ALL OF THE FOLLOWING CRITERIA:

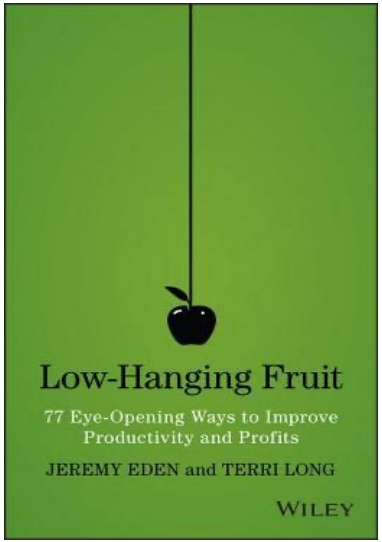
- Temperature <38°C for the previous improving 24 hours
- Signs & symptoms of infection improved or resolved
- Oral / nasogastric intake tolerated & absorbed
- No specific indication for prolonged intravenous therapy e.g. meningitis, febrile neutropenia, bacteraemia, endocarditis, osteomyelitis
- Availability of a suitable oral agent
- Patient likely to be adherent with oral therapy
  - In children consideration needs to be given to the palatability of oral agents

FIGURE 14
Suggested criteria for switching antimicrobial therapy from the intravenous to oral route(1)

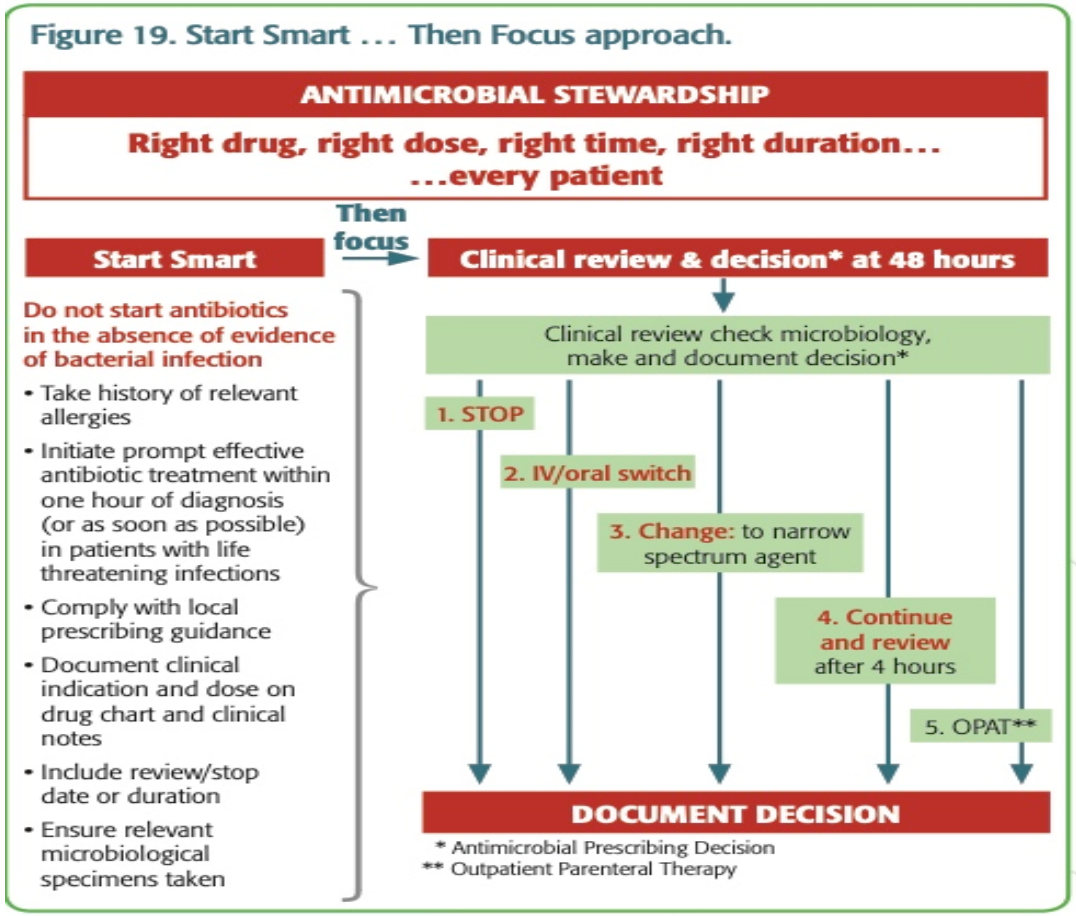
“Low Hanging Fruit” De-escalation

- Ensuring initial and/or empiric therapy is appropriate based on microbiology results and other clinical information is a critical component of any ASP

Narrow the antibiotics
Reduce the no. of antibiotics
Stop antibiotics if infection unlikely
Switching
Directed therapy based on causative pathogen
Stop safety antibiotics



De-escalation

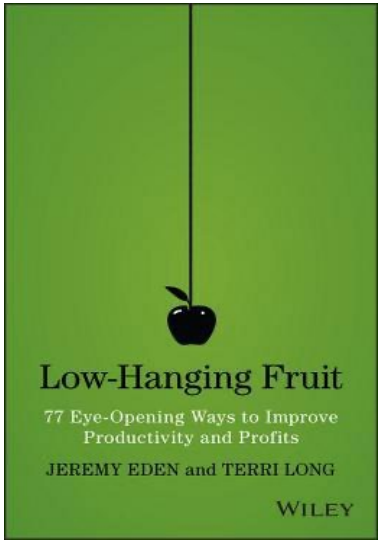


Figures 19 and 20 are adapted from Department of Health Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) ANTIMICROBIAL STEWARDSHIP:"START SMART - THEN FOCUS" Guidance for antimicrobial stewardship in hospitals (England) November 2011.

“Low Hanging Fruit”
Dose Optimization

Renal Dosing - reduces therapeutic failures and adverse events

- Protocol or guideline
- Pharmacist authority for automatic dose adjustments



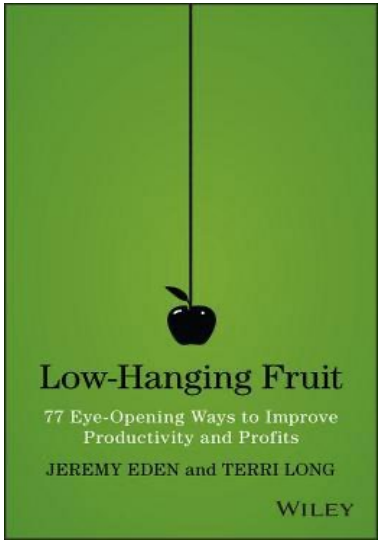
“Low Hanging Fruit” Duration of Therapy

Table 14. Practice Guideline Recommendations regarding duration of therapy

• Community-acquired pneumonia (CAP)	5 days
• Health care-acquired pneumonia	8 days
• Skin and Soft Tissue Infections (SSTI)	5 days
• Urinary Tract Infections (UTI)	
- Cystitis	3-5 days [a]
- Pyelonephritis	5-14 days [a]
- Catheter associated	7 days [b]
• *S. aureus* bacteremia	
- Low risk of complications,	2 weeks
- High risk of complications	4-6 weeks
• Intra-abdominal infection	4-7 days
• Surgical antibiotic prophylaxis,	1 dose [c]

[a] Depending on antibiotic
[b] Prolonged to 10-14 days for delayed response
[c] Up to 24h, witout exception

Adapted from Wlodover et al., Infect. Dis. Clin. Pract. 2012;20:12-17.



“Low Hanging Fruit” Guidelines

Table 13. Specific Situations where Antibiotics should be withheld

- Respiratory tract syndromes
  - Viral pharyngitis
  - Viral rhinosinusitis
  - Viral bronchitis
  - Noninfectious cardiopulmonary disorders misdiagnosed as pneumonia
- Acute Otitis Media (AOM) (for selected cases, refer to article)
- Skin and Soft Tissue Infections (SSTI)
  - Subcutaneous abscesses (for selected cases, refer to article)
  - Lower extremity stasis dermatitis
- Asymptomatic bacteriuria and pyuria, including catheterized patients
- Microbial colonization and culture contamination
- Low-grade fever

Adapted from Wlodover et al., Infect. Dis. Clin. Pract. 2012;20:12-17.

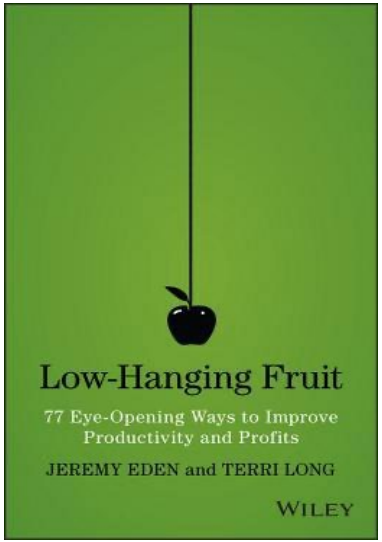


Table 8. Example of the United Kingdom Specialist Advisory Committee on Antimicrobial Resistance recommended guidelines.

TREATMENT OF:

- Urinary tract infections
- Upper respiratory tract infections
- Lower respiratory tract infections (community and hospital acquired pneumonia, and exacerbations of chronic obstructive pulmonary disease)
- Soft tissue infections (injuries or bites, cellulitis, chronic ulcers and necrotising fasciitis)
- Central nervous system infections (bacterial meningitis, viral encephalitis
- Gastrointestinal infections such as food poisoning and intra-abdominal sepsis
- Genital tract infections
- Bloodstream infections
- Eye, ear, nose and throat infections
- Sepsis of unknown origin
- Specific confirmed infections; for example, treatment regimens for methicillin-resistant *Staphylococcus aureus*, *Clostridium difficile* and tuberculosis
- Endocarditis

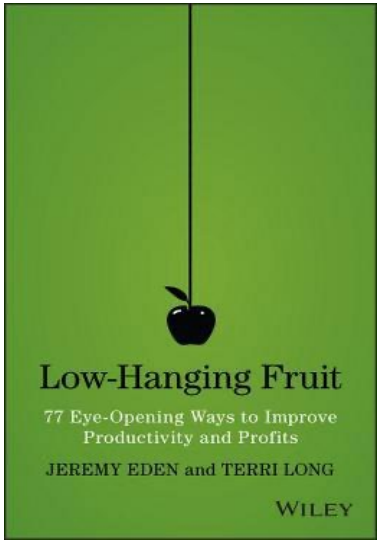
PROPHYLAXIS USE FOR:

- Prevention of bacterial endocarditis (which patients should receive prophylaxis)
- Endoscopic procedures (which individuals, considered at high risk, should receive prophylaxis; for example, neutropenic patients)
- Surgical procedures (recommendations for all common surgical interventions, including timing of initial dose and exceptional circumstances for repeat doses)
- Splenectomy patients (provide details of both the immunisation and antimicrobial prophylaxis requirements)

Adapted from Specialist Advisory Committee on Antimicrobial Resistance (SACAR) Antimicrobial Framework. J. Antimicrob. Chemother. 2007;60:i87–i90.

“Low Hanging Fruit”

1. Dose optimization - optimal daily dosage and days of therapy
2. Automatic time-outs for empiric treatment
3. Prospectively audit antimicrobial prescriptions
4. Standardize conversions from IV to oral drug
5. Employ healthcare information technology such as electronic medical records and clinical decision support software



Dellit TH et al. IDSA and the Society for Healthcare Epidemiology of America Guidelines for Developing an Institutional Program to Enhance Antimicrobial Stewardship. Clinical Infectious Diseases. 2007;44:159-77

INVITED ARTICLE CLINICAL PRACTICE

Ellie J. C. Goldstein, Section Editor

Is the "Low-Hanging Fruit" Worth Picking for Antimicrobial Stewardship Programs?

Debra A. Goff,[1] Karri A. Bauer,[1] Erica E. Reed,[1] Kurt B. Stevenson,[2,3] Jeremy J. Taylor,[1] and Jessica E. West[2]

- Intravenous-to-Oral Conversion
- Antimicrobial Batching
- Automatic Therapeutic Substitution
- Formulary Restriction

Clinical Infectious Diseases 2012;55(4):587–92

ASP Activity	Reference	Setting	Description of ASP Intervention	Cost Savings/Avoidance
Intravenous-to-oral conversion	Davis et al 2005 [10]	Detroit Receiving Hospital and University Health Center	Prospective pharmacy intervention involving sequential intravenous/oral therapy for patients with pneumonia	Drug acquisition cost savings of $110/patient
	Kuti et al 2002 [11]	Hartford Hospital	A pharmacist-managed proactive program that used predetermined clinical criteria for converting levofloxacin therapy from intravenous to oral	Length of stay and costs were significantly less for the intravenous-to-oral converted patients (6 vs 9.5 d [$P = .031$]) and ($13 931 vs $17 198)
	Paladino et al 1991 [12]	Millard Fillmore Suburban Hospital	After conventional intravenous antibiotics were administered for 3 days, patients were randomly assigned to either continue intravenous antibiotics or switch to oral ciprofloxacin	Ciprofloxacin was associated with an average cost savings of $293 per patient
	Hendrickson and North 1995 [13]	Denver Veterans Affairs Medical Center	Patients converted from intravenous ceftriaxone to oral cefpodoxime	A drug cost savings of $46.05 per patient; patients receiving step-down therapy averaged 1 less day of hospitalization
	Lau et al 2011 [18]	Johns Hopkins Hospital	Evaluated budget impact of voriconazole, pantoprazole, chorothiazide, levetiracetam in patients eligible for oral medication	Potential annual cost reduction of $1 166 759.70
	Jones et al 2012 [19]	VA hospitals throughout United States	Evaluated budget impact of fluoroquinolones in patients eligible for oral medication	Estimated cost savings over 4 years in the range of $4 million
	2010	The Ohio State University Wexner Medical Center	ASP targeted linezolid, moxifloxacin, and fluconazole	Annualized cost avoidance savings for these 3 antimicrobials were $242 713

Therapeutic substitution	2010	The Ohio State University Wexner Medical Center	Substituted brand-name vancomycin capsules for flavored vancomycin solution compounded by pharmacy	Annual cost savings of $218 877
Batching IV antimicrobials	2010	The Ohio State University Wexner Medical Center	Maintenance doses of daptomycin were made from single-use 500-mg vials by batching orders at standardized times	370 vials saved over 4 months ($83 991)
				Annual cost savings of $250 000
		The Ohio State University Wexner Medical Center	Maintenance doses of caspofungin were made from single-use 70-mg vials by batching orders at standardized times	572 vials per year saved;
				Annual cost savings of $60 000
Formulary restriction	White et al 1997 [22]	Ben Taub General Hospital Houston	Prior ID authorization required for restricted antimicrobials	Total intravenous antimicrobial expenditures decreased by 32% ($863 100)
				Antibiotic cost per patient-day decreased from $18.00 to $12.90
	Po et al 2012 [3]	Banner Estrella Medical Center	Implemented computer physician order entry ASP restrictive template for linezolid	Linezolid use fell from 28 defined daily doses/1000 patient-days to 7 defined daily doses/1000 patient-days over 25 months; cost data not reported
	2010	The Ohio State University Wexner Medical Center	Doripenem added to formulary as a restricted antibiotic, required prior authorization by ASP	Annual antipseudomonal carbapenem cost savings of $61 000

AMERICAN SOCIETY FOR MICROBIOLOGY | Journal of Clinical Microbiology

Antimicrobial Stewardship in the Microbiology Laboratory: Impact of Selective Susceptibility Reporting on Ciprofloxacin Utilization and Susceptibility of Gram-Negative Isolates to Ciprofloxacin in a Hospital Setting

B. J. Langford,[a] J. Seah,[a] A. Chan,[a] M. Downing,[a,b] J. Johnstone,[a,b,c] L. M. Matukas[a,b]

Impact of selective susceptibility reporting on ciprofloxacin utilization and gram-negative susceptibility to ciprofloxacin in a hospital setting

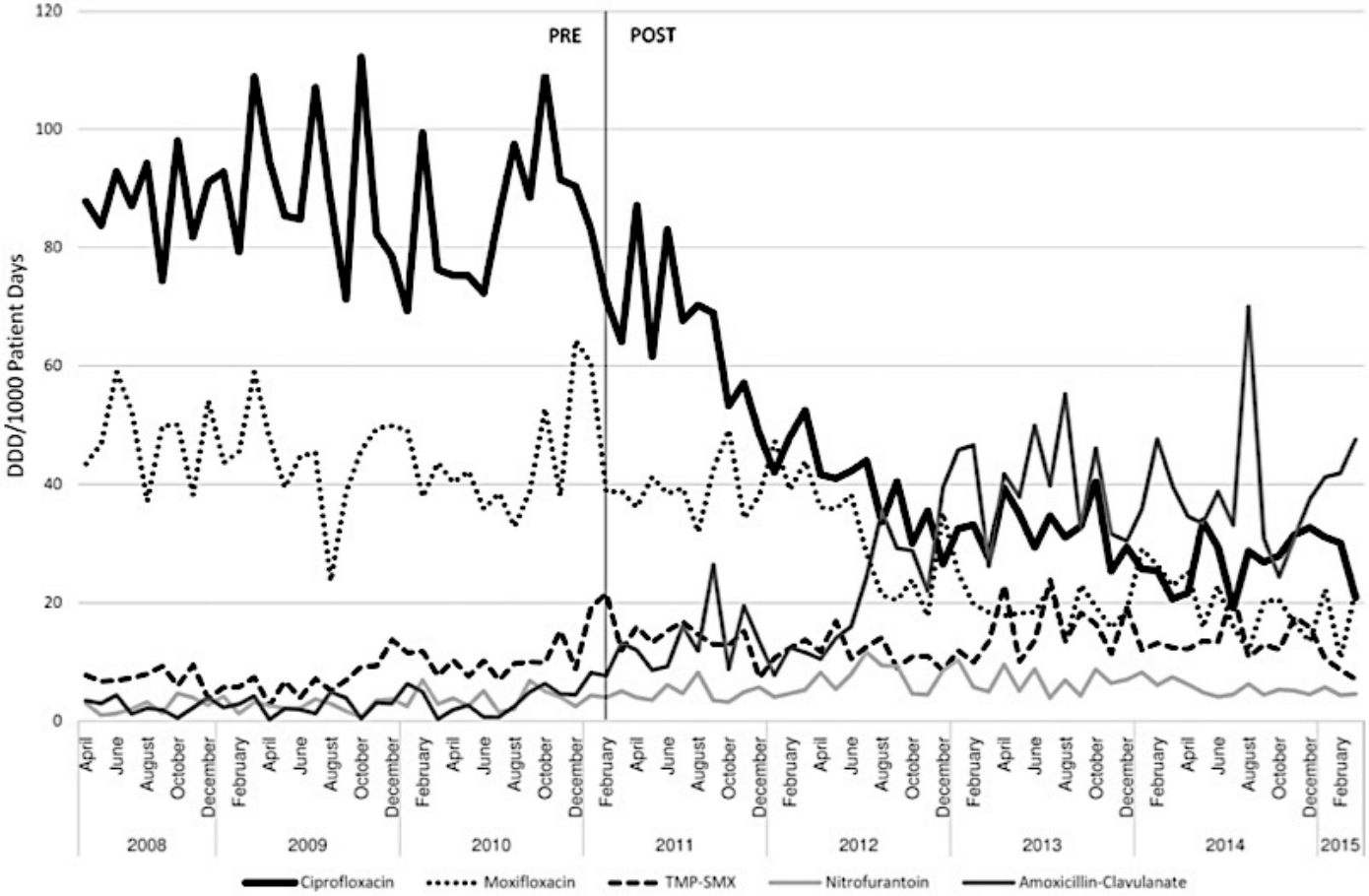


FIG 1 Antimicrobial utilization before and after ciprofloxacin selective reporting.

Langford BJ, Seah J, Chan A, Downing M, Johnstone J, Matukas LM. 2016. Antimicrobial stewardship in the microbiology laboratory: impact of selective susceptibility reporting on ciprofloxacin utilization and susceptibility of Gram- negative isolates to ciprofloxacin in a hospital setting. J Clin Microbiol 54:2343–2347. doi:10.1128/JCM.00950-16.

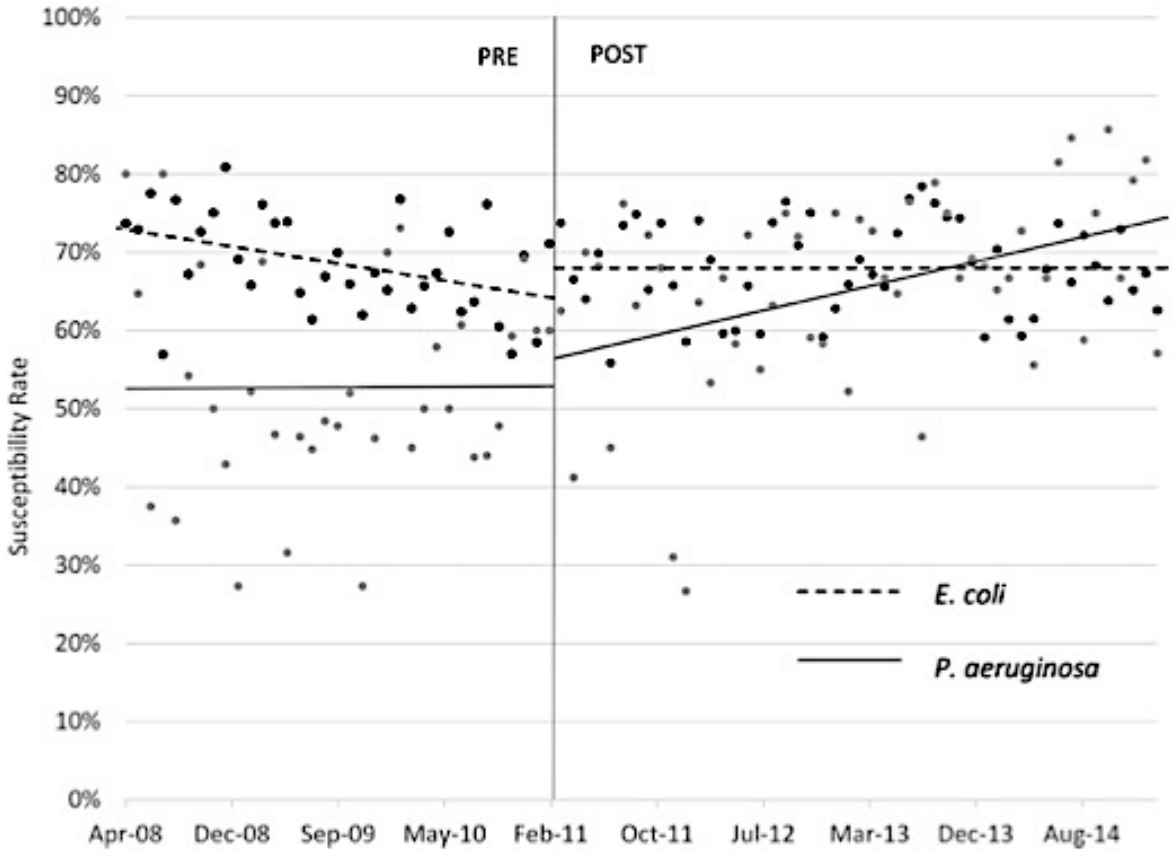


FIG 2 *E. coli* and *P. aeruginosa* susceptibility to ciprofloxacin before and after selective susceptibility reporting.

Langford BJ, Seah J, Chan A, Downing M, Johnstone J, Matukas LM. 2016. Antimicrobial stewardship in the microbiology laboratory: impact of selective susceptibility reporting on ciprofloxacin utilization and susceptibility of Gram- negative isolates to ciprofloxacin in a hospital setting. J Clin Microbiol 54:2343–2347. doi:10.1128/JCM.00950-16.

Identifying "low-hanging fruit" antibiotic stewardship opportunities for pharmacists in small and critical access hospitals

Katherine M. Shea, PharmD, BCIDP, AAHIVE; Jennifer Van Cura , PharmD

Cardinal Health, Houston, TX

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Background

- Small and critical access hospitals (CAHs) encounter unique challenges in implementing antibiotic stewardship (AS) due to limited resources.[1]
- The Centers for Disease Control and Prevention's Core Elements of Hospital Antibiotic Stewardship Programs list pharmacy-driven interventions as one category for actions supporting antibiotic use. These include automatic intravenous to oral (IV to PO) conversion, dose adjustments for organ dysfunction, dose optimization, alerts for unnecessary duplication, automatic stop orders, and detection and prevention of drug-drug interactions.[2]
- In December 2016, a small and rural hospital antimicrobial stewardship alliance (SARAA) was established with the purpose of interhospital collaboration and providing expert AS consultation and resources.
  - Phase one consisted of identification of regulatory gaps and implementation of strategies to enhance compliance with requirements.
  - Phase two consists of implementation of "low hanging fruit" pharmacist-driven AS interventions.
- Investigators sought to evaluate existing opportunities for "low-hanging fruit" pharmacy-driven interventions related to AS at small and CAHs.

Objectives

- To evaluate the presence of pharmacy-driven antimicrobial stewardship interventions related to intravenous to oral conversion, renal dose adjustments, and dose optimizations within small and critical access hospitals.

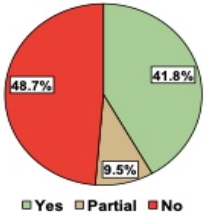
Methods

- Multi-center survey of small and CAHs assessing compliance with seven pharmacy-driven antibiotic stewardship activities (completed May 2018)
  - Intravenous to oral conversion
  - Renal dose adjustment protocol/guideline
  - Cefepime dose optimization
  - Meropenem dose optimization
  - Piperacillin/tazobactam dose optimization (prolonged infusion)
  - Vancomycin dosing protocol/guideline
  - Aminoglycoside protocol/guideline
- Hospitals with an average daily census of less than 30 beds were included in the survey.
- The presence of pharmacy-driven interventions were assessed for individual hospitals and the entire cohort based on a response of "yes," "no", and "partial."

Results

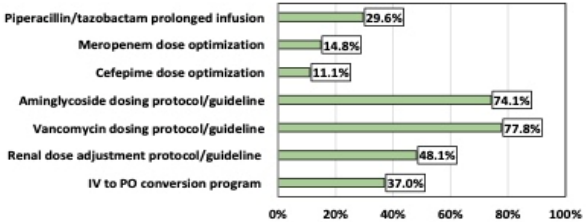
- 27 hospitals with an average (±SD) daily census of 12.5 (6.9) patients completed the survey.
- Overall, less than 50% "yes" responses were identified for all survey questions (Figure 1).

Figure 1. Responses for Pharmacy-driven Stewardship Activities



- All surveyed elements had less than 50% "yes" responses except for the presence of a vancomycin or aminoglycoside protocol or guideline (Figure 2).
- Dose optimizations including piperacillin/tazobactam, meropenem, and cefepime had the lowest percent of "yes" responses (Figure 2).

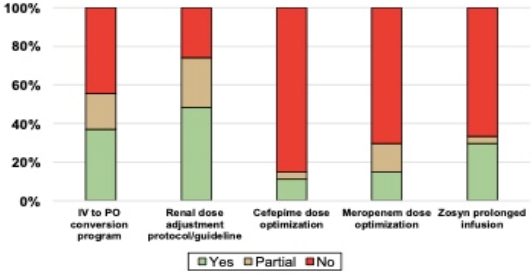
Figure 2. "Yes" Survey Responses by Stewardship Activity



Results

- For interventions associated with < 50% "yes" response, increased "partial" responses were identified with IV to PO conversion and renal dose adjustment protocol/guideline compared to other interventions.

Figure 3. Interventions with < 50% "Yes" Responses



Conclusion

- This survey identified "low-hanging fruit" pharmacy-driven antibiotic stewardship interventions in small and CAHs.
- IV to PO conversion, renal dosing, and antibiotic dose optimization are potential "low-hanging fruit" pharmacy-driven antimicrobial stewardship interventions.
- Next steps include a phased approach to implement these initiatives within all 27 hospitals.

References

1. Centers for Disease Control and Prevention (CDC). Implementation of Antibiotic Stewardship Core Elements at Small and Critical Access Hospitals. Accessed 09/23/2019. https://www.cdc.gov/antibiotic-use/healthcare/implementation/core-elements-small-critical.html
2. CDC Core Elements of Hospital Antibiotic Stewardship Programs. Accessed 09/23/2019. http://www.cdc.gov/getsmart/healthcare/implementation/core-elements.html

Disclosures

The authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation:

Katherine M. Shea – Nothing to disclose

Jennifer Van Cura – Nothing to disclose

Multi-center survey of small and CAHs assessing compliance with seven pharmacy-driven antibiotic stewardship activities (completed May 2018)

- Intravenous to oral conversion
- Renal dose adjustment protocol/guideline
- Cefepime dose optimization
- Meropenem dose optimization
- Piperacillin/tazobactam dose optimization (prolonged infusion)
- Vancomycin dosing protocol/guideline
- Aminoglycoside protocol/guideline

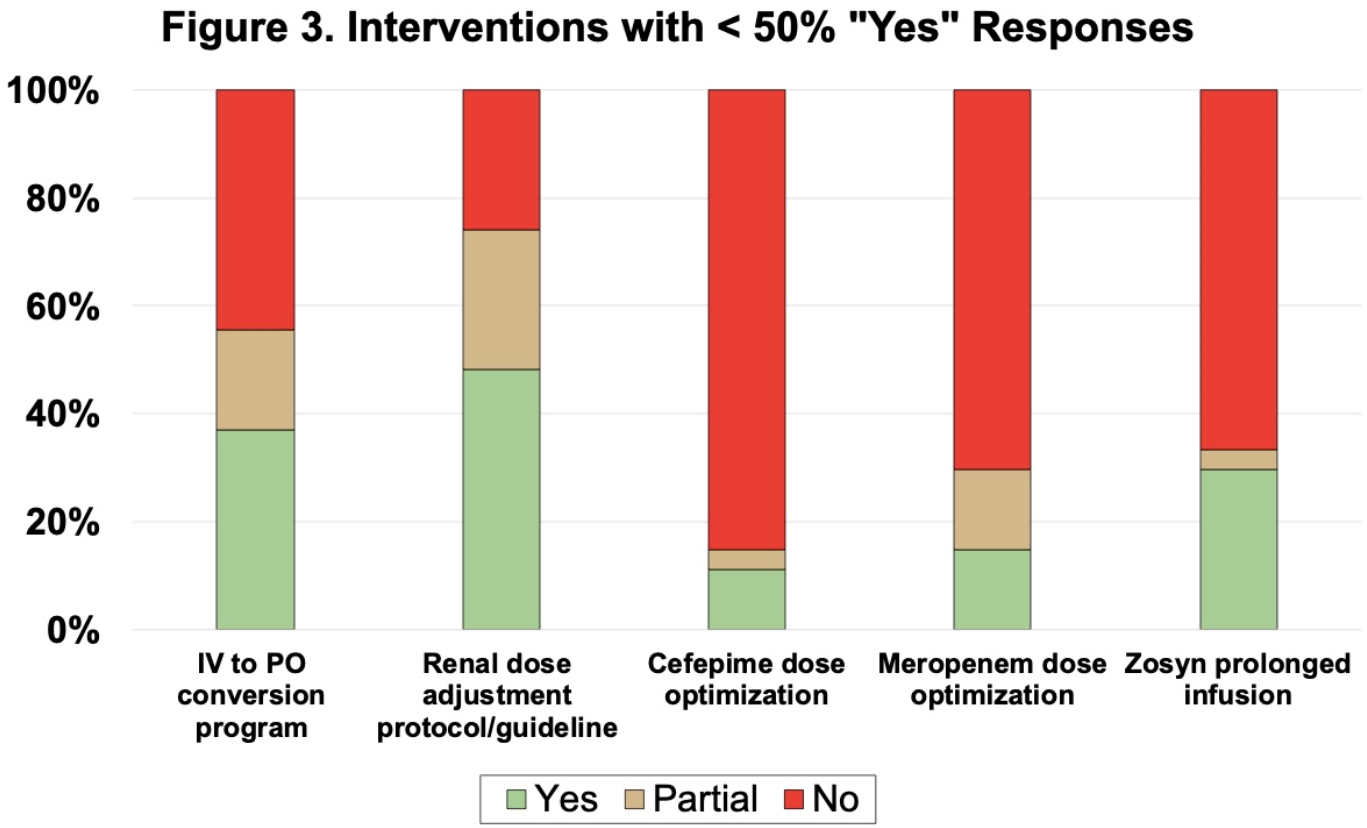


Figure 3. Interventions with < 50% "Yes" Responses
100%
80%
60%
40%
20%
0%
IV to PO conversion program
Renal dose adjustment protocol/guideline
Cefepime dose optimization
Meropenem dose optimization
Zosyn prolonged infusion
Yes
Partial
No

Antibiotic stewardship next steps: What to do when the low-hanging fruit is gone

Mackenzie Bean - Tuesday, June 26th, 2018 Print | Email

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- More rapid diagnostic testing

  MRSA *PCR*

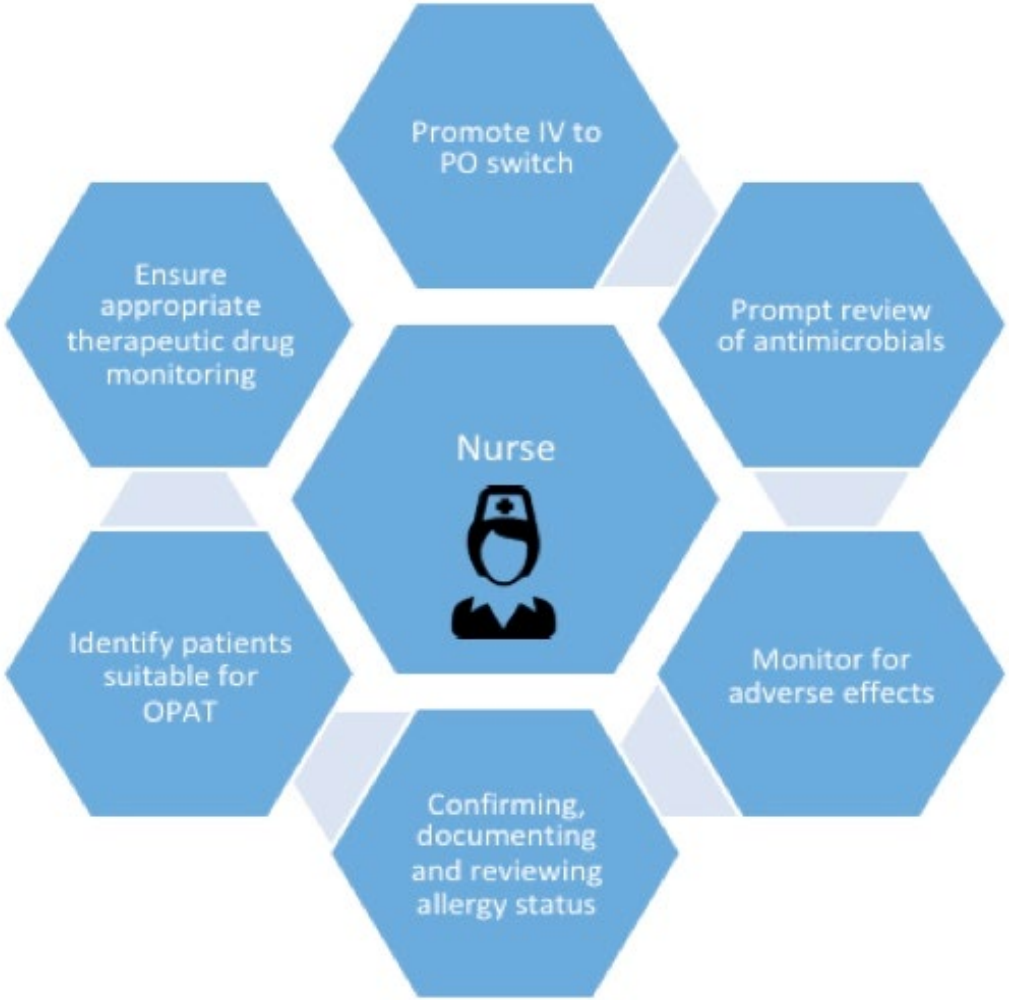
  Biomarkers e.g. Procalcitonin testing

  Blood culture PCR

  Respiratory PCR testing

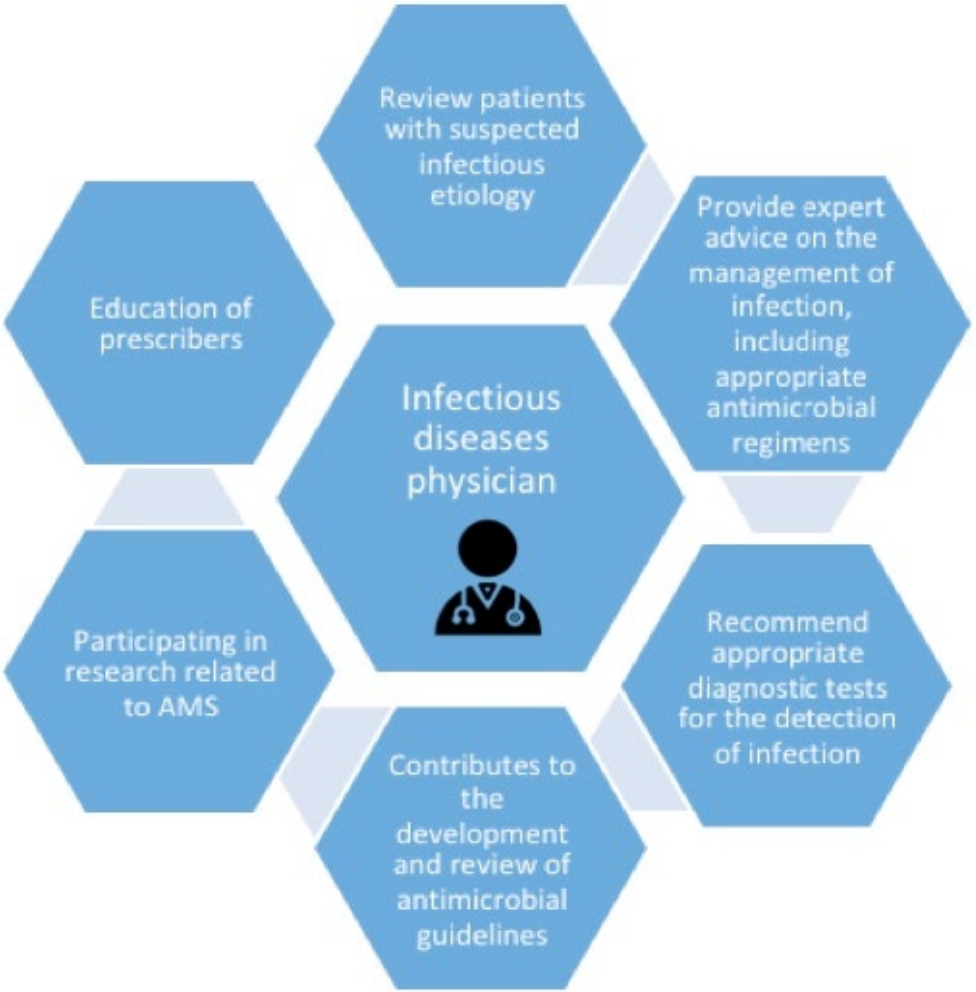
  Point of care testing e.g. influenza, Strep A

Resources and cost !!!


Promote IV to PO switch
Ensure appropriate therapeutic drug monitoring
Prompt review of antimicrobials
Nurse
Identify patients suitable for OPAT
Monitor for adverse effects
Confirming, documenting and reviewing allergy status


Review and feedback of antimicrobial prescriptions
Enforcing guidelines, including formulary restrictions
Provide expert advice on antimicrobials
Identify cases that need to be referred to specialist infectious diseases / microbiology teams
Assisting in antimicrobial guideline review
Participating in research related to AMS
Pharmacist


Establish best practice for the microbiological evaluation of cultures
Recommend appropriate diagnostic tests for the detection of infection
Provide advice on the clinical significance of microbiological cultures
Selective reporting of culture susceptibilities
Provide antimicrobial stewardship ward rounds within areas where patients are at high risk of infection
Provide antibiograms and assist in the interpretation of these in relation to local antimicrobial guidelines
Clinical microbiologist


Review patients with suspected infectious etiology
Provide expert advice on the management of infection, including appropriate antimicrobial regimens
Education of prescribers
Infectious diseases physician
Participating in research related to AMS
Recommend appropriate diagnostic tests for the detection of infection
Contributes to the development and review of antimicrobial guidelines

Take Home Message

1. Develop a relationship with someone who has money and power
2. Appeal to the heart and get money
3. Develop relationships
4. Put a team together
5. Understand your data
6. Launch your ASP
7. Grab low-hanging fruit
8. Engage stakeholders
9. Measure success in different ways
10. Report success

Group Work

- Review the Case given
- Identify the intervention/s
- Discuss the different strategies for implementation
- Choose your measurement
  - what measurement
  - how often ?
- Group Presentation

8 mins

5 mins

DAY 2 Workshop Schedule

	WORKSHOP A Room 6	WORKSHOP B Room 5	WORKSHOP C Room 4
1430	Group 1	Group 2	Group 3
1530	Group 3	Group 1	Group 2
1630	Group 2	Group 3	Group 1

BRITISH SOCIETY FOR ANTIMICROBIAL CHEMOTHERAPY

GULF/MIDDLE EAST/AFRICA COLLABORATIVE CONFERENCE