Doing More With Less: Stewardship Without an Infectious Diseases Physician

A presentation for HealthTrust Members
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Speaker Disclosures

- The presenters have no real or perceived conflicts of interest related to this presentation.

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Objectives

- Discuss the regulatory guidelines related to antimicrobial stewardship
- Describe a pharmacist-led antimicrobial stewardship program at an institution without an infectious disease physician on staff
- Evaluate the outcomes associated with a pharmacist-led antimicrobial stewardship program

Question 1: Which of the following organizations have provided guidelines related to stewardship programs?

A. Centers for Disease Control (CDC)
B. The Joint Commission (TJC)
C. Centers for Medicare & Medicaid Services (CMS)
D. All of the above

Response 1: Which of the following organizations have provided guidelines related to stewardship programs?

A. Centers for Disease Control (CDC)

B. The Joint Commission (TJC)

C. Centers for Medicare & Medicaid Services (CMS)

D. All of the above

Regulatory Guidelines

Why is this important?

- "Antimicrobial resistance threatens the effective prevention and treatment of an ever-increasing range of infections caused by bacteria, viruses and fungi."

~ WHO

- "Antimicrobial resistance has emerged as a significant healthcare quality and patient safety issue in the twenty-first century that, combined with a rapidly dwindling antimicrobial armamentarium, has resulted in a critical threat to the public health of the United States."

~ IDSA/SHEA/PID

Source: World Health Organization. Feb 2018.
SHEA,IDSA,PID. 2012;33:322-327

Summary of Core Elements of Hospital Antibiotic Stewardship Programs

- **Leadership Commitment:** Dedicating necessary human, financial and information technology resources.
- **Accountability:** Appointing a single leader responsible for program outcomes. Experience with successful programs show that a physician leader is effective.
- **Drug Expertise:** Appointing a single pharmacist leader responsible for working to improve antibiotic use.
- **Action:** Implementing at least one recommended action, such as systemic evaluation of ongoing treatment need after a set period of initial treatment (i.e. "antibiotic time out" after 48 hours).
- **Tracking:** Monitoring antibiotic prescribing and resistance patterns.
- **Reporting:** Regular reporting information on antibiotic use and resistance to doctors, nurses and relevant staff.
- **Education:** Educating clinicians about resistance and optimal prescribing.

Source: Centers for Disease Control and Prevention. *MMWR.* March 2014. 63; 194-200.

The Joint Commission (TJC) MM.09.01.01

- Leaders establish antimicrobial stewardship as an organizational priority
- The hospital educates staff and licensed independent practitioners
- The hospital has an antimicrobial stewardship multidisciplinary team
- The hospital's antimicrobial stewardship program (ASP) includes the CDC core elements
- The hospital's ASP uses organization-approved multidisciplinary protocols
- The hospital collects, analyzes, and reports data on its ASP
- The hospital takes action on improvement opportunities identified

Source: https://www.jointcommission.org/assets/1/6/New_Antimicrobial_Stewardship_Standard.pdf

Centers for Medicare & Medicaid Services (CMS)

- Proposed rule in 2016 requiring all acute-care and critical access hospitals that participate in Medicare or Medicaid to develop and implement an antibiotic stewardship program as part of infection control efforts

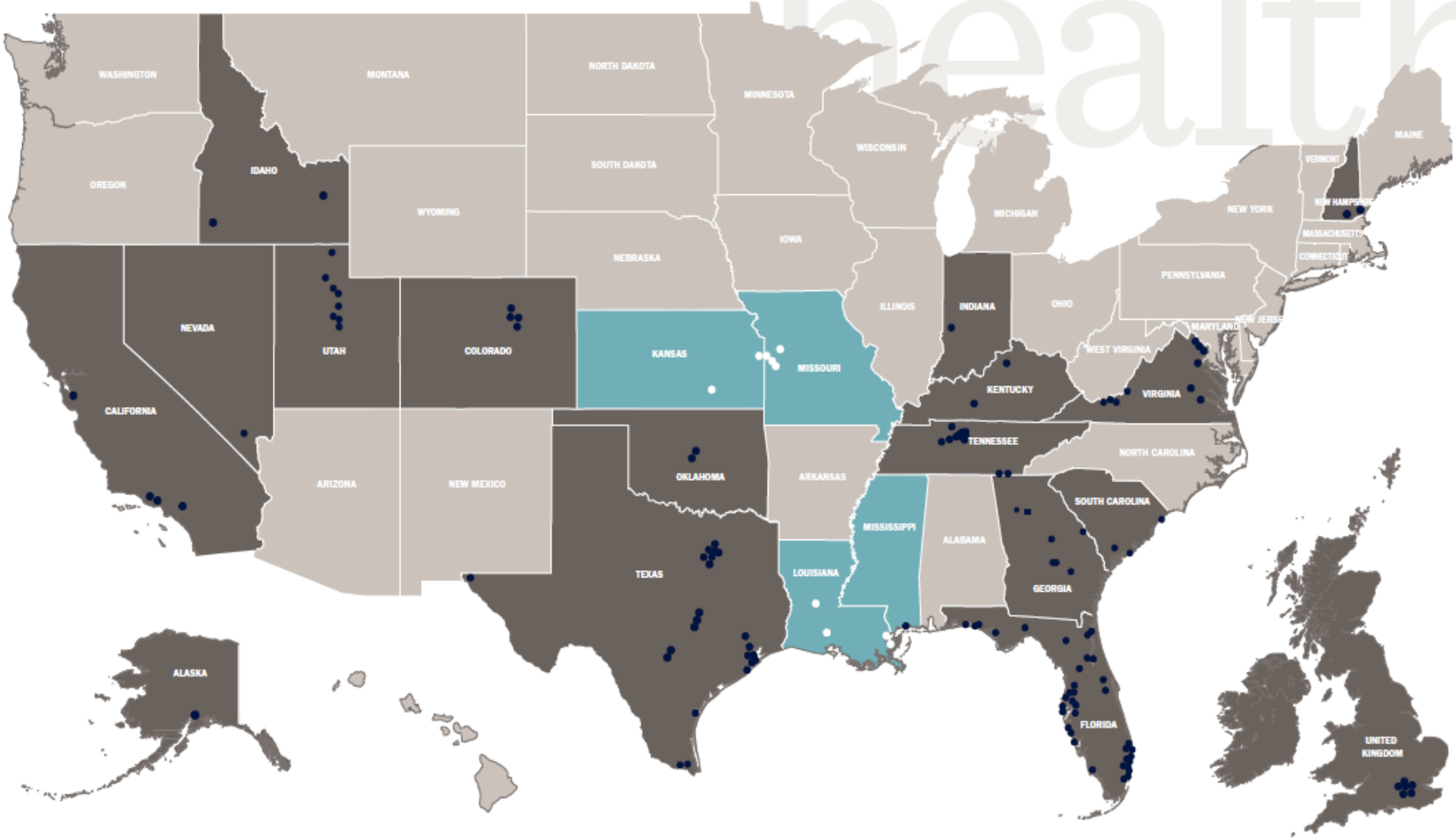
- Finalized rule September 2019

Rapides Regional Medical Center ASP

Rapides Regional Medical Center

- Alexandria, LA
- 355 beds
  - 2 adult intensive care units (ICU)
  - 6 telemetry/med-surg floors
  - 1 universal trauma unit
  - Pediatric ICU
  - Pediatric floor
  - Labor & delivery
- Level II trauma center
- Chest pain center
- Stroke center
- Hospital Corporation of America (HCA) facility

HCA Facility, MidAmerica Division



Background of ASP

2014

- Began the process of creating an ASP committee/program
- No infectious diseases (ID) physician on staff
- Staff pharmacist received Society of Infectious Diseases Pharmacists (SIDP) certification

2017

- TJC standard effective
- Could not identify a non-ID physician champion

Antimicrobial Stewardship Metrics

- In April 2018, HCA Clinical Services Group (CSG) introduced pharmacy metrics
  - Patients de-escalated goal: ≥30%
    - Rapides: 27.7%
  - Oral to IV dose ratio – targeted drugs* goal: ≥70%
    - Rapides: 56.8%
  - Fluoroquinolone (FQ) use in UTI goal: ≤20%
    - Rapides: 45.9%
    - Highest percentage in the company (159 facilities)

*includes antibiotics and other medications

Antimicrobial Stewardship Data

- Assess other data at Rapides for benchmarking
  - Antibiotic spend/adjusted patient day: $13.62 (1Q18)
  - FQ days of therapy comparison to southern facilities in the MidAmerica Division

Source: Hicks et al.

Question 2: Hicks, et al., found that antibiotic prescribing rates were _____ in the south versus other regions of the U.S. among all age groups.

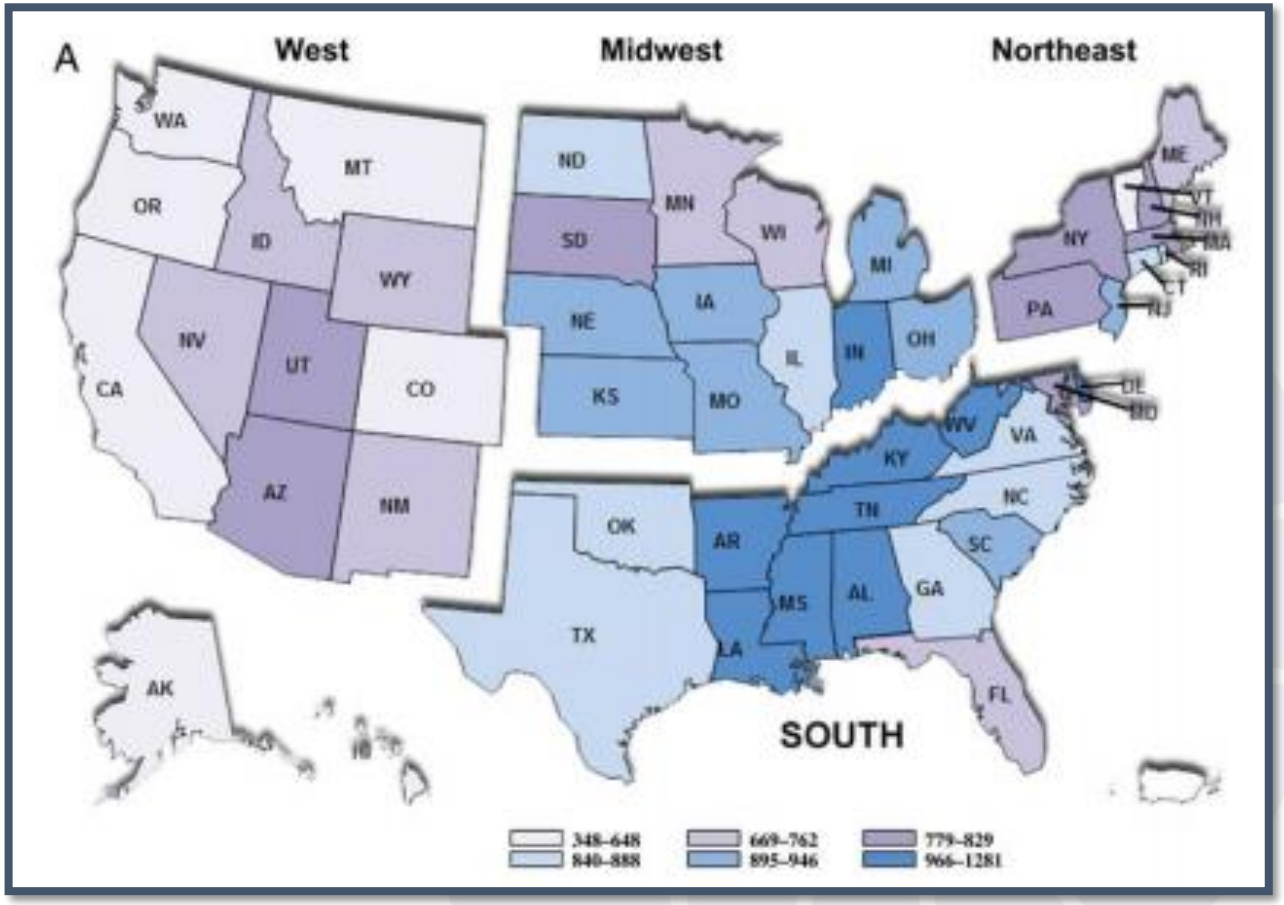
A. Lower
B. Higher
C. Equivalent

Response 2: Hicks, et al found that antibiotic prescribing rates were _____ in the south versus other regions of the U.S. among all age groups.

A. Lower
B. Higher
C. Equivalent

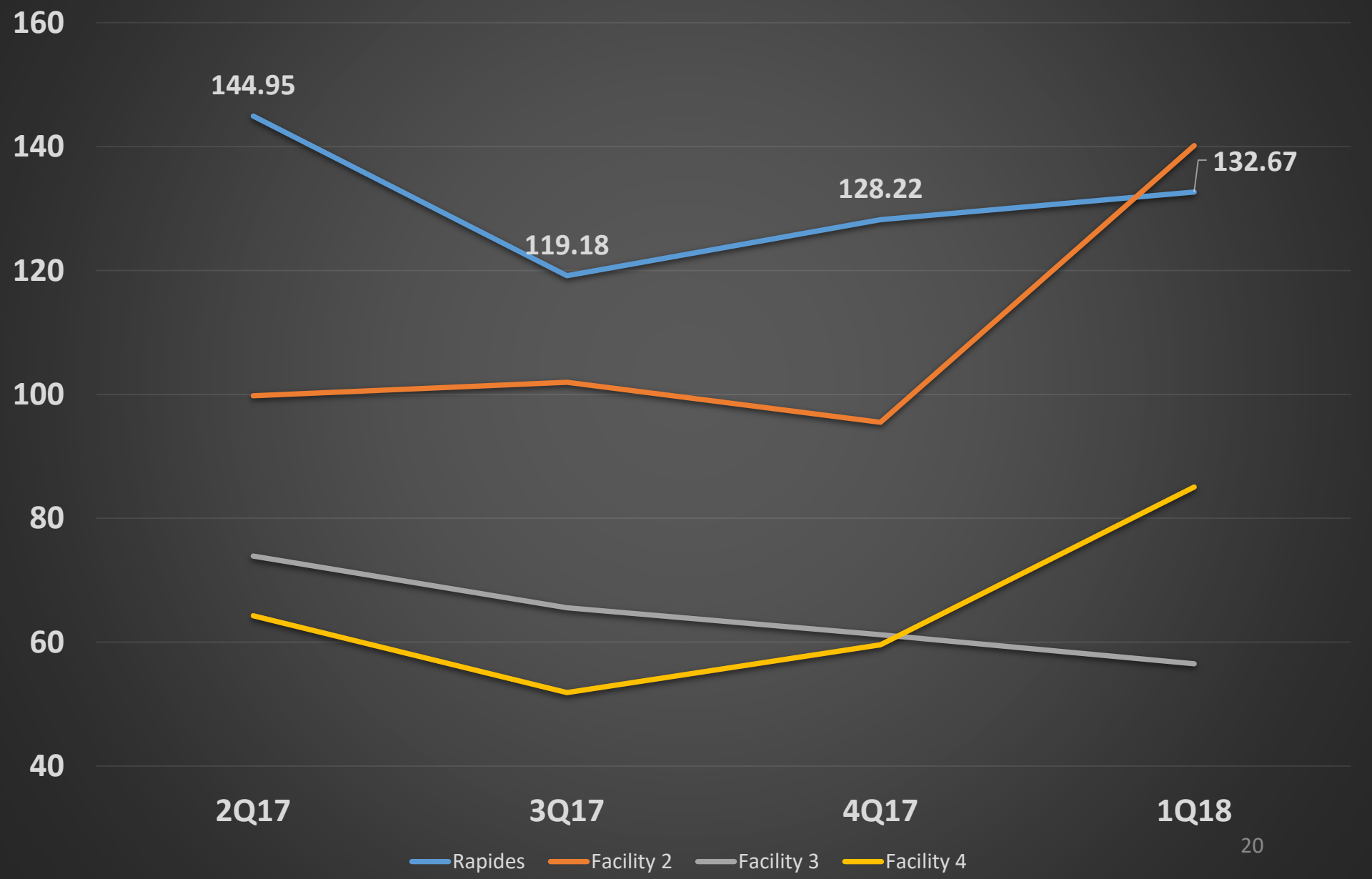
Prescribing practices

- Oral antibiotic prescriptions dispensed during 2011
- Prescribing rates highest in the South among all age groups



Source: Clin Infect Dis. 2015 May 1;60(9):1308-16.

Fluoroquinolone Days of Therapy per 1000 Patient Days



Next steps

- Review best practice(s)
- Identify barriers

Best practice

- Reached out to the clinical manager at West Florida Hospital (HCA facility)
- 10-hour rotating ASP shift
- Monday - Friday
- Infectious Disease physicians
- Clinical team meetings

Identifying Barriers

- No Infectious Disease (ID) physician on staff
- Unable to name a non-ID physician champion
- No formal ID rounds
- Pharmacist FTEs
- No automatic IV to PO policy

Getting Creative

- Ginger Hebron, SIDP certified pharmacist
- Staffed in women's/pediatric hospital 5 days per week

How could we adapt the best practice to our facility utilizing the available resources?

- June 2018: Pulled Ginger back to the main pharmacy two days/week to begin staffing 8 hour ASP shift

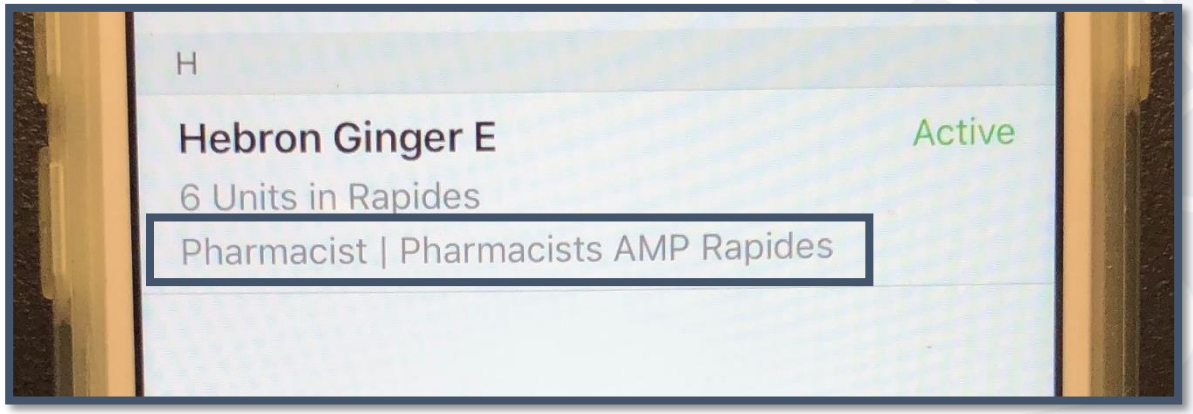
ASP Shift

ASP Shift Goals

- De-escalation
- IV to PO
- Antibiotic usage data reporting
- Provider education

ASP Shift

- Educated providers on the shift and how to get in contact with the pharmacist, if needed
- ASP role in hospital communication system



- Created a workflow document which included expectations of the shift

ASP Shift Workflow Document

Antimicrobial Stewardship Pharmacist (AMP) Shift Workflow

1. **Expectations**
   - The AMP shift will be on Monday, Tuesday, and Friday from 0700 – 1530 and cover all floors
   - It is the role of the AMP pharmacist to resolve all antimicrobial stewardship activations before the end of the workday.
     - The clinical staff pharmacist will not complete the antimicrobial stewardship activations unless communicated to the AMP pharmacist (to avoid two pharmacists paging the same prescriber about the same activation).
   - In-person communication of an antimicrobial intervention/plan is optimal but not always possible.
     - Contacting the nurse to determine physician availability on the floor can assist with coordinating a face-to-face communication.
     - In most cases, unless the physician is difficult to reach, please do not ask nursing to communicate antimicrobial stewardship plan.
   - The AMP pharmacist is responsible for logging in to iMobile and assigning the "AMP" dynamic role to be a resource for providers and pharmacists with stewardship related questions
   - It should be the goal of the AMP pharmacist to have at least 40% of the activations on their shift fall under the "completed interventions" category (drug therapy modified + consult + non-drug intervention + rejected) and have 50% of the de-escalation activations "completed"
   - When entering notes in Vigilanz® activations, lead all notes with AMP; this will help pharmacy administration to monitor and trend AMP-related interventions.
2. **Pharmacy Surveillance Vigilanz® AMP Work Que**: Run "AMP" saved search to utilize as the work queue
   - **How to Prioritize -- This list will grow all day:**
     1. Focus on resolving HIGH-PRIORITY activations first, then ROUTINE activations, then follow-up activations.
     2. If a HIGH-PRIORITY activation cannot be resolved ASAP, change the status to **FOLLOW-UP**, and create (and document) a plan as soon as able.
     3. When possible, before calling to discuss an intervention with the prescriber, make sure to work up and address all patients and activations for that particular prescriber (to avoid calling the same prescriber several times in a row).
3. **When the Vigilanz® work queue is caught up:**
   - Run the indication/duration report and evaluate the appropriateness of antibiotics with a UTI indication and any antibiotic dosed for more than 7 days
     - In Meditech → 50. Standard reports → 27. Additional reports → 52. Antibiotic report – printable → today's date and all locations
   - Complete a 72 hour review of de-escalation activations
     - Pharmacy → search → activations → activations by rule
     - Run "De-escalation metric rules" saved search
   - Evaluate PPI transfer activations with the intent of decreasing PPI days of therapy
     - Pharmacy → search → activations → activations by rule
     - Run "PPI transfer activations" saved search
   - Complete a 72 hour urine culture review to determine appropriateness of antibiotics
     - Pharmacy → search → activations → activations by rule
     - Run "Urine Cx review" saved search

Daily workflow of the shift

- Centered around clinical pharmacy workflow (CPW) system
- Begin with unacknowledged activations designated “high priority”
- Next, address unacknowledged routine and follow-up activations

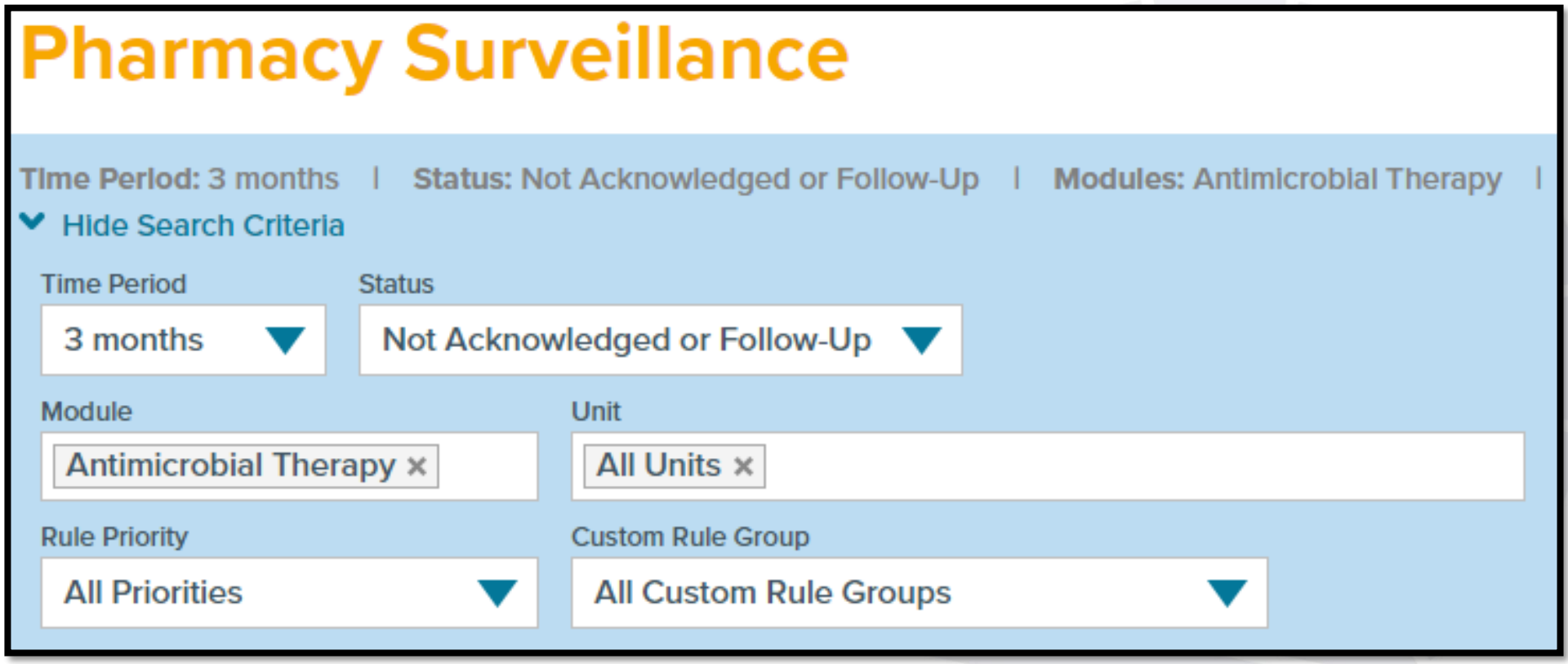
- CPW system
- Real-time clinical alerts
- Documentation of interventions

Rule Name	HCA - VRE in the Blood - Not on Therapy (I)
Description	Alerts for VRE in the blood and the patient is NOT on one of the following medications: Daptomycin, Linezolid. Rule will only fire for patients on inpatient units and will exclude discharged patients.
Guidance	Please assess for appropriate antibiotics and adding/changing to Daptomycin or other appropriate therapy as the patient has VRE in the blood.

Rule Name	HCA - Potential De-Escalation - Piperacillin/Tazobactam Respiratory Culture
Description	An alert occurs when the patient has an active order for Piperacillin/Tazobactam and has a positive respiratory culture that shows susceptibility to one of the following antibiotics: Cefazolin, Ceftriaxone, Cefuroxime, Cefotaxime, Penicillin, Ampicillin, Amoxicillin, Amoxicillin/Clavulanate, Ampicillin/Sulbactam, Levofloxacin, or Ciprofloxacin. Note: Pseudomonas and Enterobacter are excluded from this rule.
Guidance	The patient is currently on Piperacillin/Tazobactam but based on culture and sensitivity results this antibiotic may be de-escalated to a narrower agent. Please assess for the ability to narrow and make recommendations as appropriate. Reference: Paterson DL. Clinical Infectious Diseases 2006;42: S90-5.

ASP shift

Focused searches and reports in CPW



Module	Rule Name	Event	Priority
Antimicrobial Therapy	HCA - Vancomycin IV day #3 and no MRSA - assess for de-escalation v4	vancomycin	Routine
Antimicrobial Therapy	HCA - Gram Negative in the Blood-Assess for Antibiotics (Gram stain) v3	Gram-Negative Rods	High
Antimicrobial Therapy	HCA - IV Antibiotics >=2 at 72 hours (3 days) v2	meropenem, IV 1 EA SYRINGE	High
Antimicrobial Therapy	HCA - Positive Viral Culture on Antibiotics	Rhinovirus/Entero… species	High
Antimicrobial Therapy	HCA - Positive Viral Culture on Antibiotics	Rhinovirus/Entero… species	High
Antimicrobial Therapy	HCA - Procalcitonin < 0.25 (1st level) and patient on antibiotics	Procalcitonin: 0.11	Routine
Antimicrobial Therapy	HCA - Antifungal days of therapy > 7 days v3	fluconazole	Routine

Additional duties

- When caught up, evaluate the following by running reports in the Clinical Pharmacy Workflow system:
  - Antibiotics ordered with a UTI indication
  - 72-hour review of de-escalation activations
  - 72-hour urine culture review
  - Appropriate use of broad-spectrum antibiotics

Other features of a Clinical Pharmacy Workflow (CPW) system

- Data mining
- Reports for antibiotic usage (days of therapy, etc.)
- CSG pharmacy metrics
- Microbiology & laboratory results
- Antimicrobial patient list

Data Reporting

- Quarterly infection prevention meeting
- Ad hoc ASP committee meetings
- Monthly Pharmacy & Therapeutics meetings
- National Healthcare Safety Network (NHSN) reporting

Provider Education

- Created formal education on antimicrobial stewardship
- Presented to pharmacy and medical residents
- Ongoing education to providers one-on-one, as needed
- Presented clinical pearls at various physician committees to promote awareness of antimicrobial stewardship

Meeting the Standard

Rapides Regional Medical Center

Empiric Antibiotic Guidelines

- Reviewed and approved by P&T
- Clinical pearls
- De-escalation tips
- IV to PO
- *C. difficile* risk and antibiotic selection
- Preferred antimicrobial lists for selected disease states in both adults and pediatrics
  - Based on antibiogram

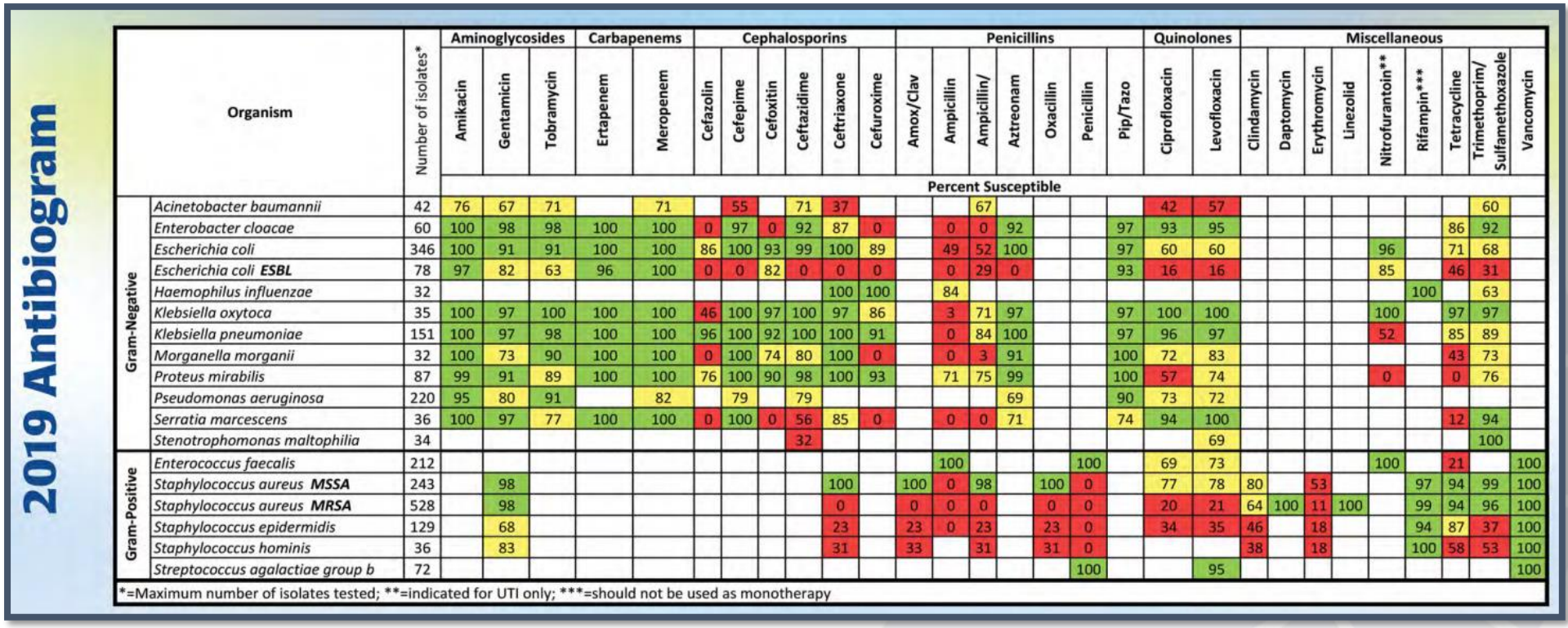
De-escalation Tips
• Evaluate the patient at 48 hours (at a minimum) to determine if antibiotics can be de-escalated • De-escalation can occur both when specific organisms have been isolated or when no specific organism has been isolated • When narrowing based on reported sensitivities, do not compare MIC values. MIC values are organism and drug specific. A lower MIC does not necessarily mean a better agent. • Consider the following additional tips:

Preferred Antimicrobial List for Selected Disease States in Adults

Please Note: This table is only a guide, designed to assist healthcare providers in selecting an appropriate, empiric antimicrobial regimen and may or may not be appropriate for all patients. Ultimately the antibiotic course depends upon culture results and the patient's clinical course.
For additional information, please contact the pharmacy.
***All dosing assumes normal renal and hepatic function**

Disease State	Common Pathogens	Adult Empiric Therapy*	Duration of Therapy
C difficile[1]	Initial episode: Mild, Moderate, severe	Vancomycin 125 mg PO Q6 hours	10 days
	Initial episode: fulminant	Vancomycin 500 mg PO Q6 hours + Metronidazole 500 mg IV Q8 hours	10 – 14 days
	First recurrence	Vancomycin 125 mg PO Q6 hours x 10-14 days THEN prolonged taper and pulsed dosed regimen for 2-8 weeks	See empiric therapy column
	Second or subsequent recurrences	Vancomycin 125 mg PO Q6 hours x 10-14 days THEN prolonged taper and pulsed dosed regimen for 2-8 weeks	See empiric therapy column

Antibiogram



2019 Antibiogram

	Organism	Number of isolates*	Aminoglycosides			Carbapenems		Cephalosporins						Penicillins							Quinolones		Miscellaneous								
			Amikacin	Gentamicin	Tobramycin	Ertapenem	Meropenem	Cefazolin	Cefepime	Cefoxitin	Ceftazidime	Ceftriaxone	Cefuroxime	Amox/Clav	Ampicillin	Ampicillin/	Aztreonam	Oxacillin	Penicillin	Pip/Tazo	Ciprofloxacin	Levofloxacin	Clindamycin	Daptomycin	Erythromycin	Linezolid	Nitrofurantoin**	Rifampin***	Tetracycline	Trimethoprim/ Sulfamethoxazole	Vancomycin
			Percent Susceptible																												
Gram-Negative	*Acinetobacter baumannii*	42	76	67	71		71		55		71	37				67					42	57								60	
	Enterobacter cloacae	60	100	98	98	100	100	0	97	0	92	87	0		0	0	92			97	93	95							86	92	
	Escherichia coli	346	100	91	91	100	100	86	100	93	99	100	89		49	52	100			97	60	60					96		71	68	
	Escherichia coli ***ESBL***	78	97	82	63	96	100	0	0	82	0	0	0		0	29	0			93	16	16					85		46	31	
	Haemophilus influenzae	32										100	100		84													100		63	
	Klebsiella oxytoca	35	100	97	100	100	100	46	100	97	100	97	86		3	71	97			97	100	100					100		97	97	
	Klebsiella pneumoniae	151	100	97	98	100	100	96	100	92	100	100	91		0	84	100			97	96	97					52		85	89	
	Morganella morganii	32	100	73	90	100	100	0	100	74	80	100	0		0	3	91			100	72	83							43	73	
	Proteus mirabilis	87	99	91	89	100	100	76	100	90	98	100	93		71	75	99			100	57	74					0		0	76	
	Pseudomonas aeruginosa	220	95	80	91		82		79		79						69			90	73	72									
	Serratia marcescens	36	100	97	77	100	100	0	100	0	56	85	0		0	0	71			74	94	100							12	94	
	Stenotrophomonas maltophilia	34									32											69								100	
Gram-Positive	*Enterococcus faecalis*	212													100				100		69	73					100		21		100
	Staphylococcus aureus ***MSSA***	243		98								100		100	0	98		100	0		77	78	80		53			97	94	99	100
	Staphylococcus aureus ***MRSA***	528		98								0		0	0	0		0	0		20	21	64	100	11	100		99	94	96	100
	Staphylococcus epidermidis	129		68								23		23	0	23		23	0		34	35	46		18			94	87	37	100
	Staphylococcus hominis	36		83								31		33		31		31	0				38		18			100	58	53	100
	Streptococcus agalactiae group b	72																	100			95									100

*=Maximum number of isolates tested; **=indicated for UTI only; ***=should not be used as monotherapy

Antibiogram

Preferred Antimicrobial List for Selected Disease States in Adults

Please Note: This table is only a guide, designed to assist healthcare providers in selecting an appropriate, empiric antimicrobial regimen and may or may not be appropriate for all patients. Ultimately the antibiotic course depends upon culture results and the patient's clinical course. For additional information, please contact the pharmacy.

Disease State	Common Pathogens		Adult Empiric Therapy*	Duration of Therapy
C difficile[1]	Initial episode: Mild, Moderate, severe		Vancomycin 125 mg PO Q6 hours	10 days
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	First recurrence		Vancomycin 125 mg PO Q6 hours x 10-14 days THEN prolonged taper and pulsed dosed regimen for 2-8 weeks	See empiric therapy column
	Second or subsequent recurrences		Vancomycin 125 mg PO Q6 hours x 10-14 days THEN prolonged taper and pulsed dosed regimen for 2-8 weeks	See empiric therapy column
Diabetic Foot Infections[2]	Polymicrobial: β-hemolytic Strep, *S. aureus*, *Pseudomonas*, Gram-negative rods, Anaerobes		Ampicillin/Sulbactam 3 gm IV Q6 hours or *If Pseudomonas concern:* Piperacillin/Tazobactam extended infusion 3.375gm IV Q8 hours +/- *If MRSA concern* Vancomycin (20-25 mg/kg load plus RX to dose)	Patient and pathogen dependent
Intra-abdominal Infections[3]	Abscess, Cholecystitis, Diverticulitis	*Enterococcus*, *Entero-bactericeae*, *Anaerobes*	*Mild to moderate:* Ceftriaxone 1 gm IV Q24 hours + Metronidazole 500 mg PO Q12 hours **OR** *Severe:* Piperacillin/Tazobactam extended infusion 3.375gm IV Q8 hours	After source control: 4-7 days Abscess: Varies based on patient response
Meningitis[4] (COMMUNITY ACQUIRED)	Age <50 yrs	*S. pneumoniae*, *N. meningitides*	Ceftriaxone 2 gm IV Q12 hours + Vancomycin (20-25 mg/kg load plus RX to dose) +/- Ampicillin 2gm IV Q4 hours *if Listeria concern*	Patient and pathogen dependent
	Age >50 yrs	*S. pneumoniae*, *N. meningitides*, *Listeria*	Ceftriaxone 2gm IV Q12 hours + Vancomycin (20-25mg/kg load plus Rx to Dose) + Ampicillin 2gm IV Q4 hours	
Neutropenic Fever[5]	*S. epidermidis*, *K. pneumonia*, *P. aeruginosa*, *S. aureus*, *E. coli*		Zosyn 3.375 gm IV Q8 hours +/- Vancomycin (20-25mg/kg load plus Rx to Dose) +/- Levofloxacin 750 mg IV q24h	Continue until neutropenia subsides (ANC ≥ 500 cells/mm³) and afebrile or longer if clinically necessary depending on symptoms and pathogens
Pneumonia[6-10]	Community-Acquired (CAP)	*S. pneumoniae*, *M. pneumoniae*, *C. pneumoniae*, *H. influenzae*	Ceftriaxone 1 gm IV Q24 hours + Azithromycin 500 mg IV/PO daily **Cephalosporin allergy:** *Non-ICU:* Levofloxacin 750 mg IV/PO Q24 hours *ICU:* Aztreonam 1gm IV Q8 hours + Levofloxacin 750 mg IV/PO Q24 hours	5 days Longer courses may be clinically necessary depending on symptoms and pathogens
	Aspiration	Anaerobes	Ampicillin/Sulbactam 3gm IV Q6 hours **OR** Clindamycin 600mg IV Q8 hours **OR** Metronidazole 500mg IV Q6 hours + Ceftriaxone 1gm IV Q24 hours **OR** *If cephalosporin allergy* Levofloxacin 750 mg IV Q24 hours	5 days

Disease State	Common Pathogens		Adult Empiric Therapy*	Duration of Therapy
Pneumonia[6-10]	Hospital-Acquired (HAP)/ Ventilator-Associated (VAP)	*P. aeruginosa*, *K. pneumoniae*, *Acinetobacter*, *S. aureus* (MRSA)	Piperacillin/Tazobactam 3.375gm IV Q8 hours OR Ceftazidime 2 gm IV Q8 hours +/- (If MRSA likely): Vancomycin (20-25 mg/kg load plus RX to dose) +/- (Consider adding if patient has high risk of mortality or has received IV antibiotics during the previous 90 days): Amikacin RX to dose OR Tobramycin RX to dose OR Levofloxacin 750mg IV daily	7 days
Septic Joint[11]	STD risk: *N. gonorrhoeae, S. aureus, Streptococcus* Low STD risk: *S. aureus*		Ceftriaxone 1g IV Q24 hours + Vancomycin (20-25 mg/kg load plus Rx to dose) +/- Azithromycin 1gm PO once *if STD risk to cover Chlamydia trachomatis*	Patient and pathogen dependent
SSTI: Cellulitis and Erysipelas[12]	Non-Purulent/ Erysipelas	β-hemolytic streptococcus, *S. aureus*	*Mild to Moderate:* Cefazolin 1gm IV Q8 hours **OR** Nafcillin 1gm IV Q4 hours *Severe:* Vancomycin (20-25 mg/kg load plus pharmacy protocol)+ Piperacillin/Tazobactam extended infusion 3.375gm IV Q8 hours	Uncomplicated: 5 days Abscess/Complicated: 7-10 days Longer courses may be clinically necessary depending on symptoms and pathogens
	Purulent/ Abscess or Risk of MRSA	*S. aureus*	Vancomycin (20-25 mg/kg load plus pharmacy protocol)	
Urinary Tract Infections[13]	Cystitis	*E. coli*, *Proteus*, *Klebsiella*, *Enterococcus*	*Uncomplicated:* Nitrofurantoin 100 mg PO BID **OR** Cephalexin 500 mg PO Q6 hours *if resistance or allergy* *Complicated:* Ampicillin 2gm IV Q6 hours + Gentamicin 5mg/kg IV Q24 hour (or per pharmacy protocol) **OR** Piperacillin/Tazobactam extended infusion 3.375gm IV Q8 hours	*Uncomplicated:* 3-5 days *Complicated:* 7-10 days *Complicated with structural abnormalities or pyelonephritis:* 14 days
	Pyelonephritis		Ceftriaxone 1 gm IV Q24 hours	

All dosing assumes normal renal and hepatic function Adult Empiric Therapy

References: [1]IDSA/SHEA C difficile Guidelines. CID 2018; 66:987-994. [2]Diagnosis and treatment of diabetic foot infections. CID 2012; 54: e132-73. [3]Intra-abdominal infection guidelines. CID 2010; 50: 133-164. [4]Guidelines for bacterial meningitis. CID 2004; 39: 1267-84. [5]IDSA guidelines on Antimicrobial agent in Neutropenic Patients. CID 2011; 52:e56-e93. [6]IDSA/ATS guidelines on CAP in adults. CID 2007; 44: S27-72. [7]ATS, IDSA. Guidelines for adults with HAP, VAP, HCAP pneumonia. Am J Respir Crit Care Med 2005; 171: 388-416. [8]Management of Adults With Hospital-acquired and Ventilator-associated Pneumonia: 2016 Clinical Practice Guidelines by the Infectious Diseases Society of America and the American Thoracic Society. Clin Infect Dis. 2016 Sep 1;63(5):e61-e111. [9]Gross AE et al. Epidemiology and Predictors of Multidrug-Resistant Community-Acquired and Health Care-Associated Pneumonia. Antimicrob Agents Chemother. 2014; 58(9):5262. [10]Attridge RT, et al. Health care-associated pneumonia in the intensive care unit: Guideline-concordant antibiotics and outcomes. J Crit Care. 2016 Aug 11. doi:10.1016/j.jcrc.2016.08.004. [Epub ahead of print]. [11]Guidelines for the diagnosis and management of prosthetic joint infection. CID 2013; 56: 1-25. [12]Guidelines SSTI infections. CID 2014; 59: 10-52. [13]Guidelines for uncomplicated acute bacterial cystitis and acute pyelonephritis in women. CID 2011; 52:e103-2.

Rapides Regional Medical Center

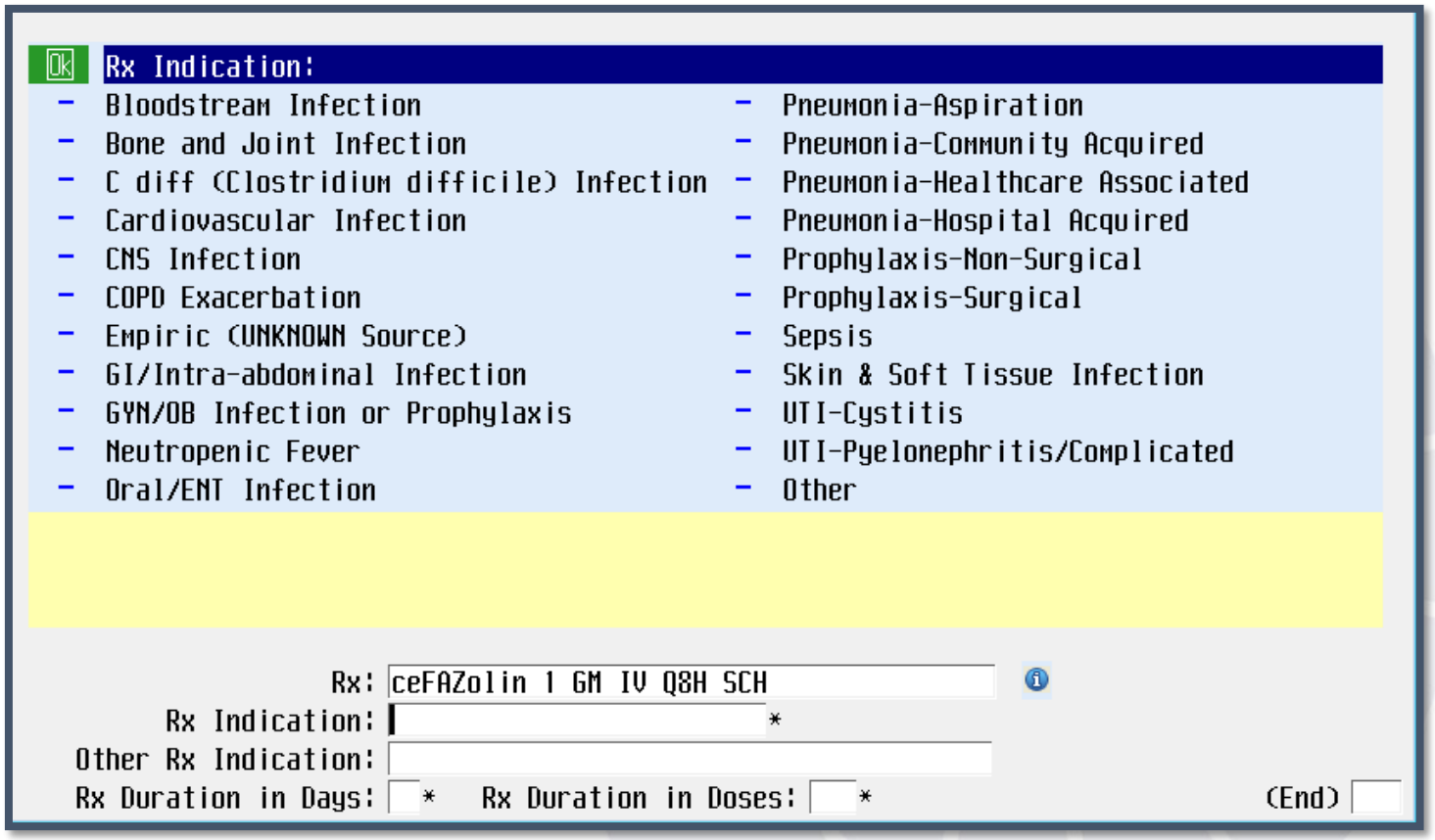
2019 Antibiogram

Based on culture and sensitivity data pulled from inpatients only and collected from January 1, 2018 to December 31, 2018

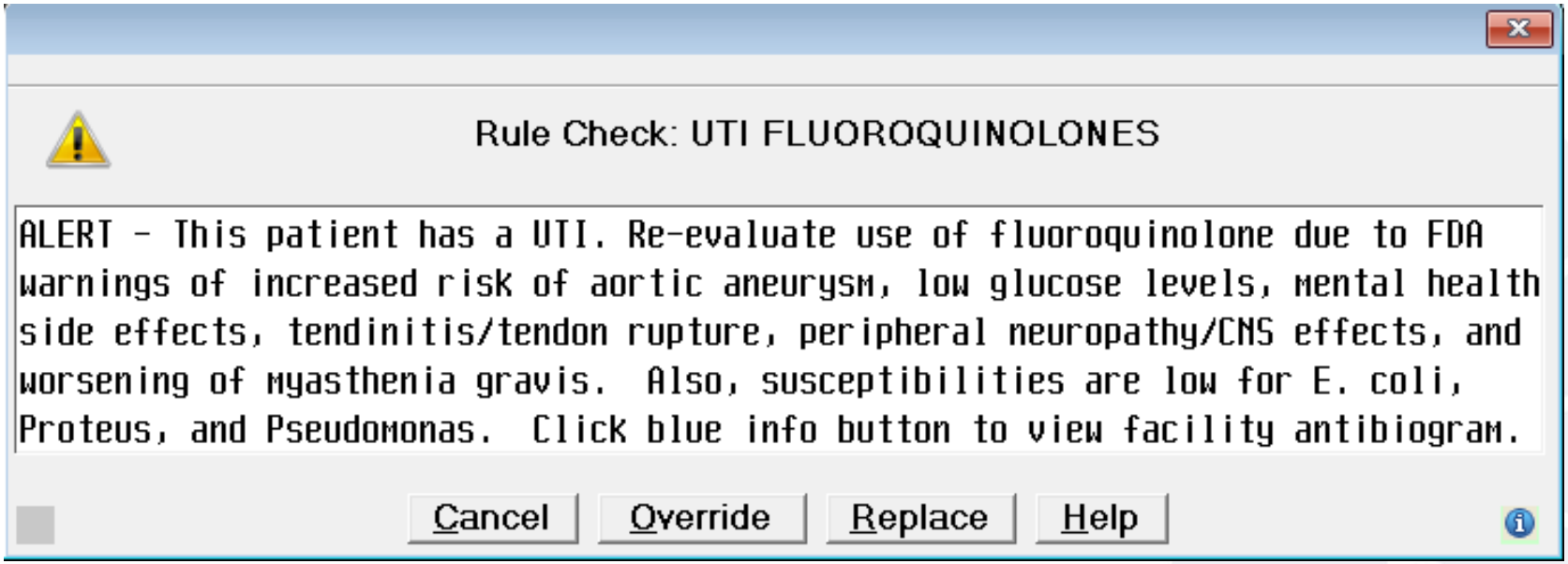
Published by Pharmacy in cooperation with Microbiology
211 Fourth Street • Alexandria, LA 71301 • 318-769-3000 • rapidesregional.com

Indication & Duration Screens

- Providers must select an indication and duration for all antibiotic orders
- Approved at P&T and MEC



Indication & Duration Screens



- Some indications will flag additional guidance
- The blue information button links to the antibiogram

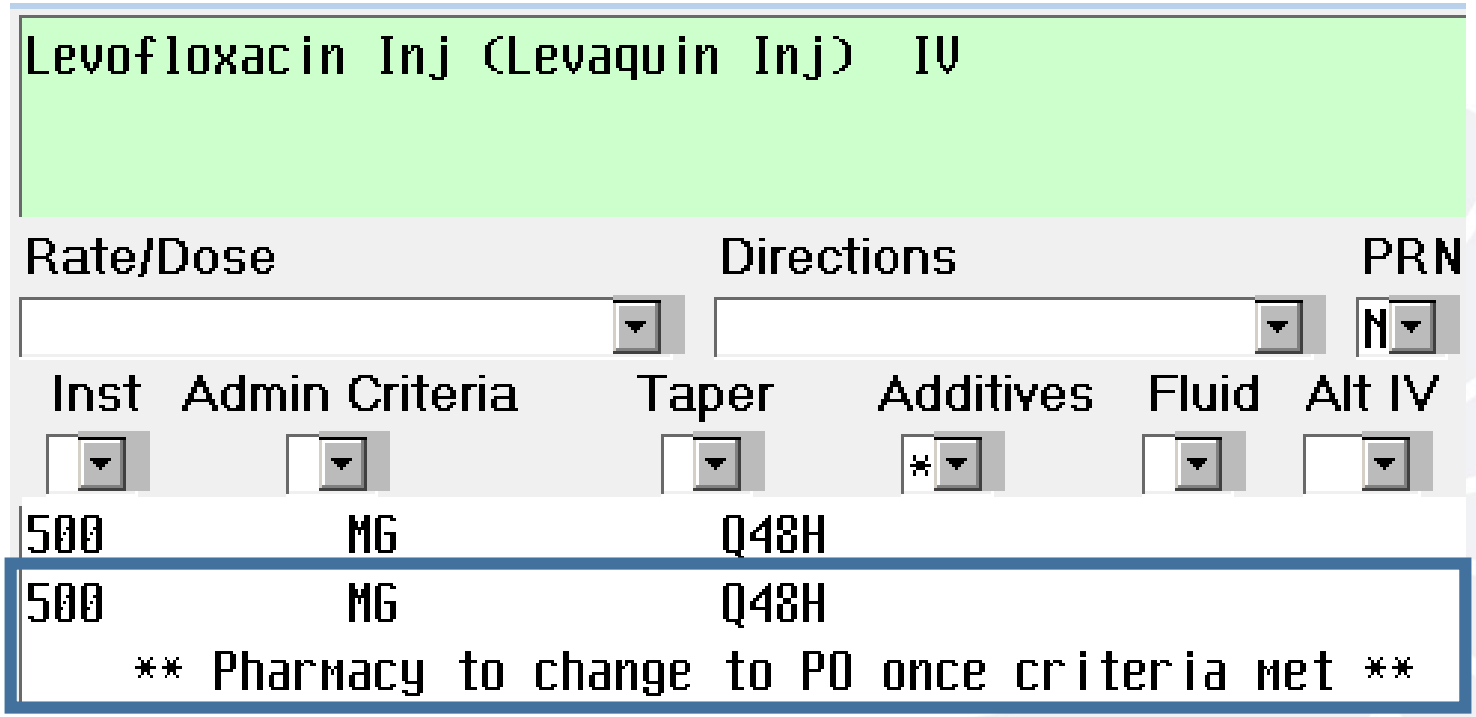
Order Sets

- Reviewed by the advanced clinicals team and pharmacy
- Tailored order sets, such as hospital acquired pneumonia, to our facility antibiogram
- Order set changes approved through P&T and Physician Advisory Group

Stewardship Related Protocols

- Reviewed and approved by P&T and MEC
- Vancomycin dosing and monitoring
- Aminoglycoside dosing and monitoring
- Renal dosing adjustments
- IV to PO (not automatic)
  - Does allow for the utilization of automatic IV to PO order strings

Automatic IV to PO Order Strings



Question 3: Which of the following committees could be utilized for approval of resources related to an effective stewardship programs?

A. Pharmacy and Therapeutics
B. Medical Executive Committee
C. Physician Advisory Group
D. All of the above

Response 3: Which of the following committees could be utilized for approval of resources related to an effective stewardship programs?

A. Pharmacy and Therapeutics
B. Medical Executive Committee
C. Physician Advisory Group
D. All of the above

Where Are We Today?

Pharmacist Staffing – Day Shift

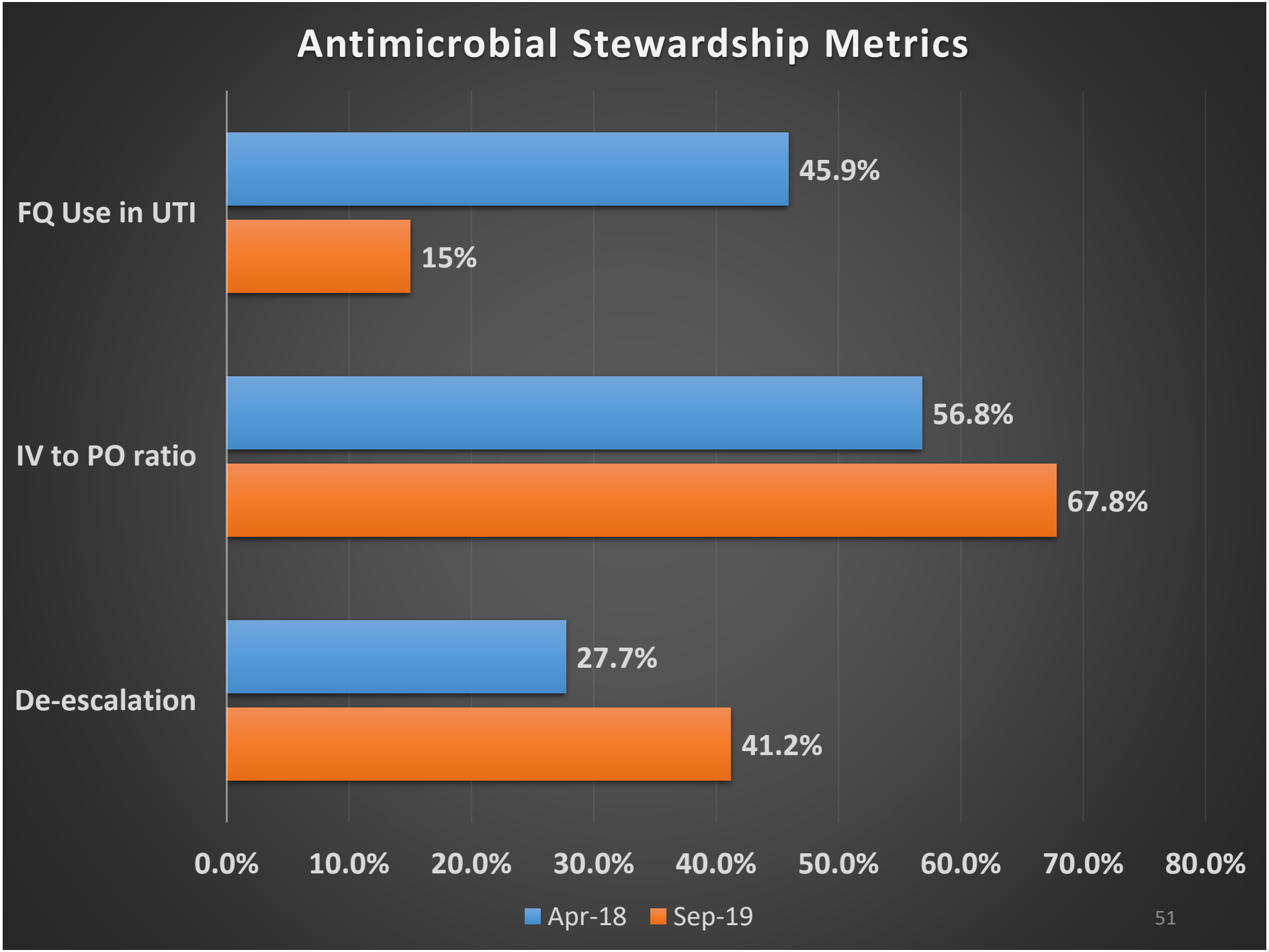
Mon	Tues	Wed	Thurs	Fri
Order Entry Chemotherapy, order verification, pharmacy calls, batch checking, etc…				
Order entry (OE) x 3 12 hour x 2 8 hour x 1	OE x 3	OE x 3	OE x 3	OE x 3
Clinical Shifts Pharmacy consults, CPW, renal dosing, ICU rounds, etc…				
Clinical x 6 • Adult floors x 5 • Women's/pedi x 1 All 8-hour shifts	Clinical x 6 ASP x 1	Clinical x 6 ASP x 1	Clinical x 6 ASP x 1	Clinical x 6

Sat	Sun
Order Entry ~~Chemotherapy~~, order verification, pharmacy calls, batch checking, etc…	
Order entry (OE) x 2 12 hour x 1 8 hour x 1	OE x 2
Clinical Shifts Pharmacy consults, CPW, renal dosing, ~~ICU rounds~~, etc…	
Clinical x 4 All 8 hours shifts	Clinical x 4

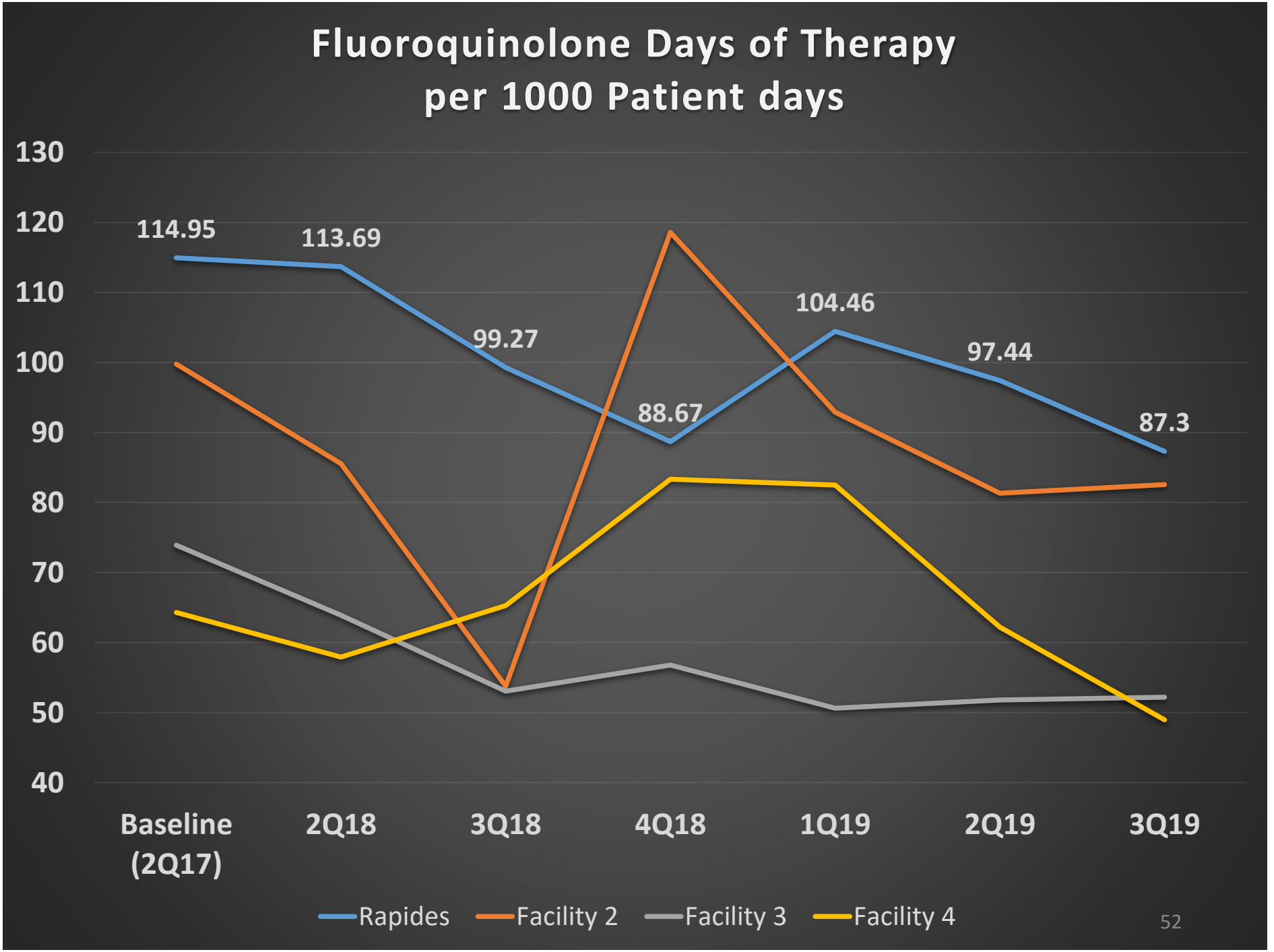
Pharmacist staffing 24/7

In addition to day shift, 7 days per week:

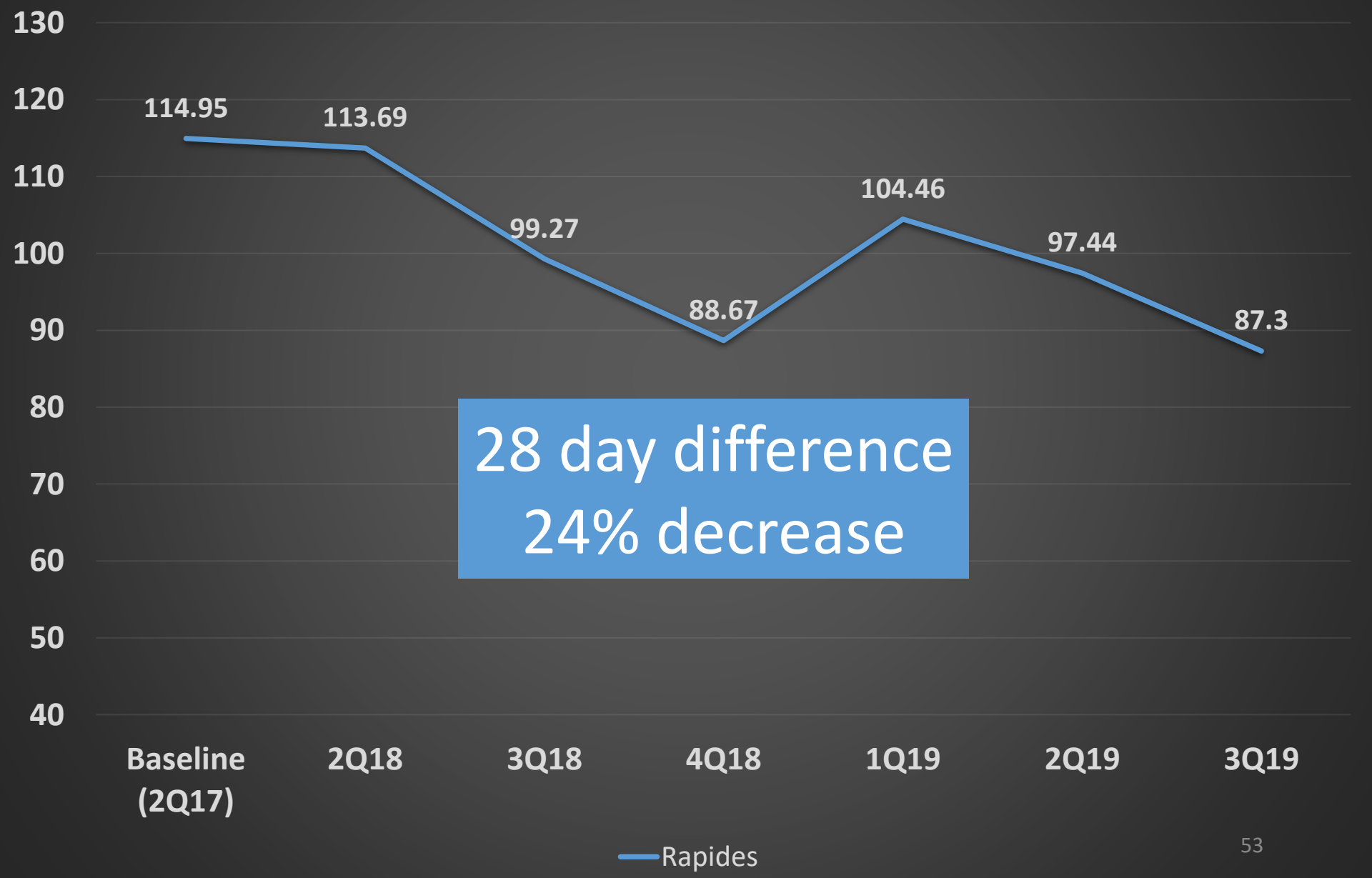
- Evening clinical pharmacist
  - Clinical Workflow System
  - New/current consults
- Night pharmacist


Antimicrobial Stewardship Metrics
FQ Use in UTI
45.9%
15%
IV to PO ratio
56.8%
67.8%
De-escalation
27.7%
41.2%
0.0%
10.0%
20.0%
30.0%
40.0%
50.0%
60.0%
70.0%
80.0%
Apr-18
Sep-19

Fluoroquinolone Days of Therapy per 1000 Patient days

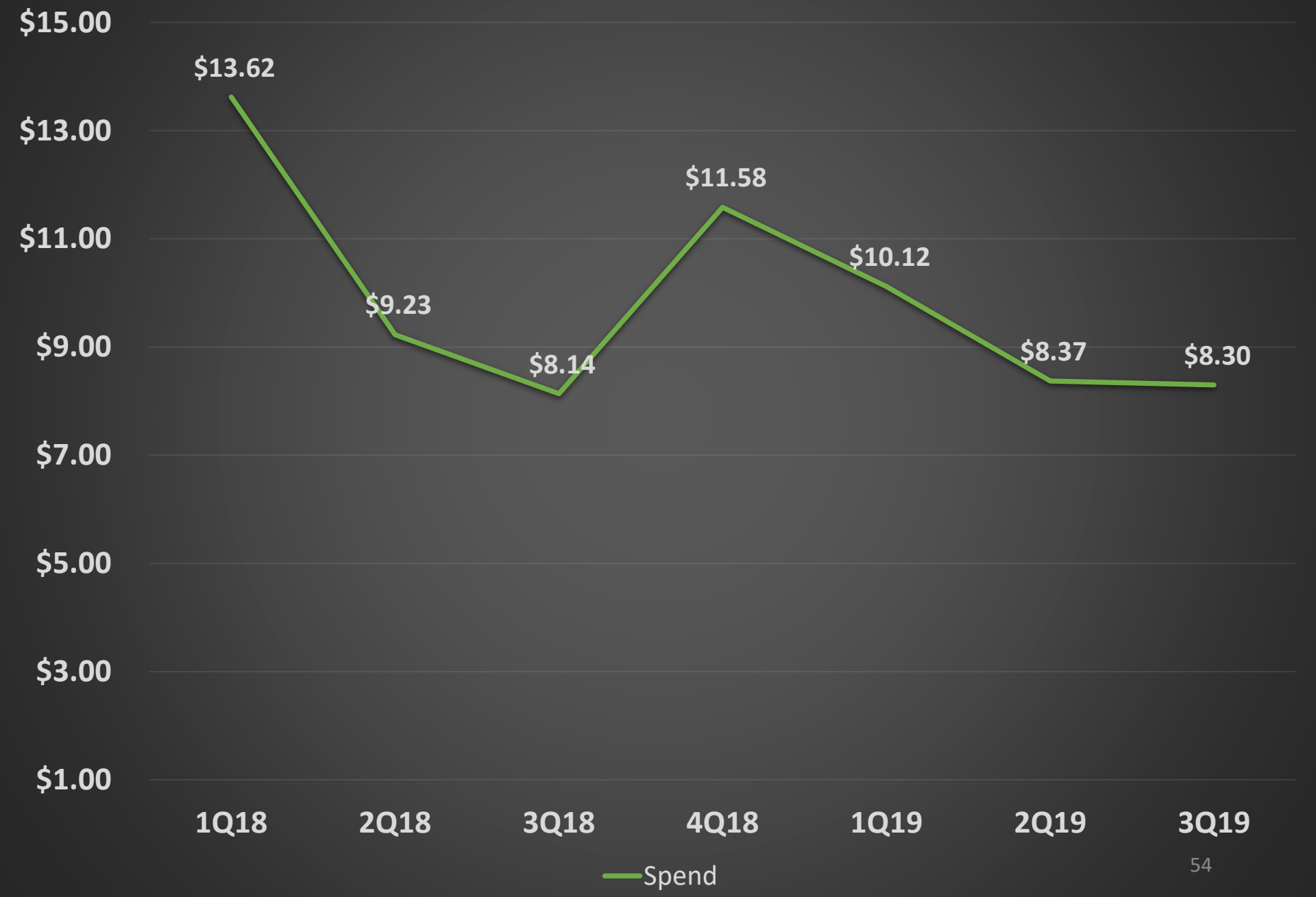


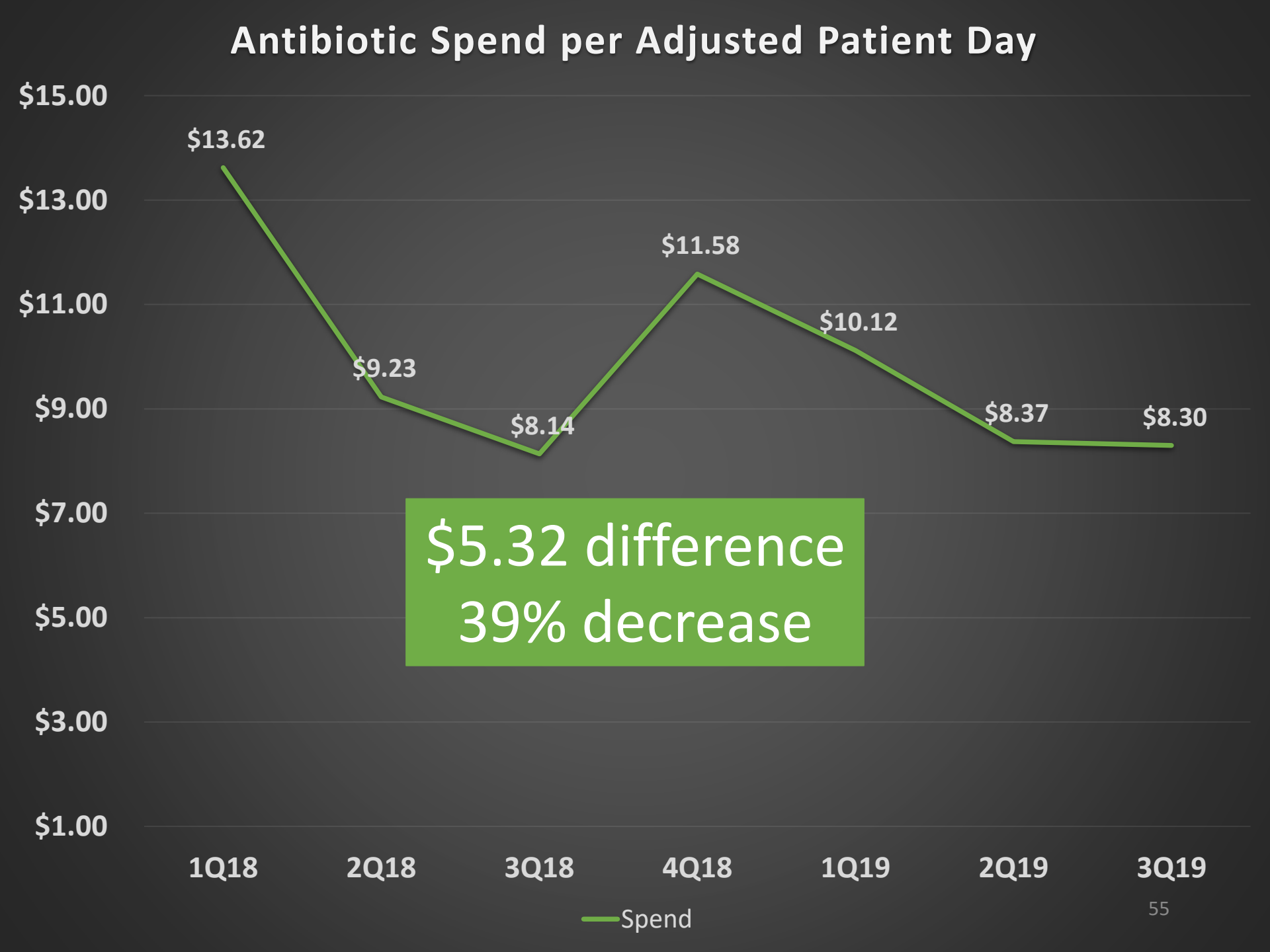
Fluoroquinolone Days of Therapy per 1000 Patient days



28 day difference
24% decrease

Antibiotic Spend per Adjusted Patient Day




Antibiotic Spend per Adjusted Patient Day
$15.00
$13.00
$11.00
$9.00
$7.00
$5.00
$3.00
$1.00
$13.62
$9.23
$8.14
$11.58
$10.12
$8.37
$8.30
$5.32 difference
39% decrease
1Q18
2Q18
3Q18
4Q18
1Q19
2Q19
3Q19
Spend

Future Opportunities

Opportunities

- ASP Physician Champion
- Automatic IV to PO policy
- 5 day/week ASP coverage
- Education
- Continued improvement on metrics

Final Thoughts

- Evaluate current state
- Identify metrics to monitor & report
- Utilize available resources
- Get creative
- Get staff buy-in
- Be persistent


YOU DON'T HAVE TO
HAVE IT ALL
FIGURED OUT TO MOVE
FORWARD...JUST TAKE THE
NEXT STEP.

References

1. Centers for Disease Control and Prevention. Core Elements of Hospital Antibiotic Stewardship Programs. Available at: https://www.cdc.gov/antibiotic-use/healthcare/index.html. Accessed 24 Sept 2019.
2. The Joint Commission. Prepublication Standards – New Antimicrobial Stewardship Standard, June 22, 2016. https://www.jointcommission.org/assets/1/6/New_Antimicrobial_Stewardship_Standard.pdf. Accessed 24 Sept 2019.
3. Centers for Medicare and Medicaid Services. https://www.federalregister.gov/documents/2019/09/30/2019-20736/medicare-and-medicaid-programs-regulatory-provisions-to-promote-program-efficiency-transparency-and. Accessed 14 Oct 2019.
4. Lauri A. Hicks, Monina G. Bartoces, Rebecca M. Roberts, Katie J. Suda, Robert J. Hunkler, Thomas H. Taylor, Stephanie J. Schrag, US Outpatient Antibiotic Prescribing Variation According to Geography, Patient Population, and Provider Specialty in 2011, *Clinical Infectious Diseases*, Volume 60, Issue 9, 1 May 2015, Pages 1308–1316, https://doi.org/10.1093/cid/civ076.

Thank you!!

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