

Antibiotic Stewardship & Reducing Hospital-Acquired Infections

Jenna Preusker, Pharm.D., BCPS

Laura Hoogestraat, RN, CIC

HIIN Roadshow

April 4, 2018

Disclosures

- The speakers have no financial or other conflicts of interest to report.

Objectives

- Understand how promoting antibiotic stewardship efforts for effective antibiotic therapy reduces infections.
- Explore IV to PO conversion of antibiotic therapy as a method to reduce hospital-acquired infections.
- Analyze how contaminated urinalysis specimens effect treatment of urinary tract infections.

About FRHS



- 131 bed acute care facility
- Cardiovascular care
 - Chest Pain Center
- Cancer care
- Orthopedics
- Physical Rehabilitation
- Women's and Children's
- Obstetrics
- Primary Stroke Center
- Surgical Services



Objective 1

Understand how promoting antibiotic stewardship efforts for effective antibiotic therapy reduces infections.

What is antibiotic stewardship?

- Pharmacist
- Hospitalist
- Infectious Disease Physician
- Infection Preventionist
- Microbiology supervisor
- Nursing
- Education
- Pharmacy Director
- Emergency Room Physician
- Chief Medical Officer
- VP of Ancillary Services
- Quality

Antimicrobial stewardship is defined as a rational, systematic approach to the use of antimicrobial agents in order to achieve optimal outcomes.

- Nebraska Medicine

Virulence. 2013;Feb 15;4(2):192-202.

- ASPs significantly reduce the incidence of infections, colonization with antibiotic-resistant bacteria, and the incidence of *Clostridium difficile* infections in hospitalized patients
- One meta-analysis study examined over 9 million patient days from 1960 – 2016 and results showed the advent of antibiotic stewardship programs reduced burden from infections
- Study showed reduction in infections & colonization
 - 51% reduction in multi-drug resistant Gram-negative bacteria
 - 48% reduction in ESBL producing Gram-negative bacteria
 - 37% reduction in MRSA (methicillin-resistant *Staph aureus*)
- Study showed reduction in infections
 - 32% reduction in *Clostridium difficile* infections

Baur D, Gladstone BP, Burket F, et al. Effect of antibiotic stewardship on the incidence of infection and colonization with antibiotic-resistant bacteria and *Clostridium difficile* infection: a systematic review and meta-analysis. *Lancet Infectious Diseases*. 2017


Objective 2

Explore IV to PO conversion of antibiotic therapy as a method to reduce hospital-acquired infections.

Benefits of oral antibiotic therapy

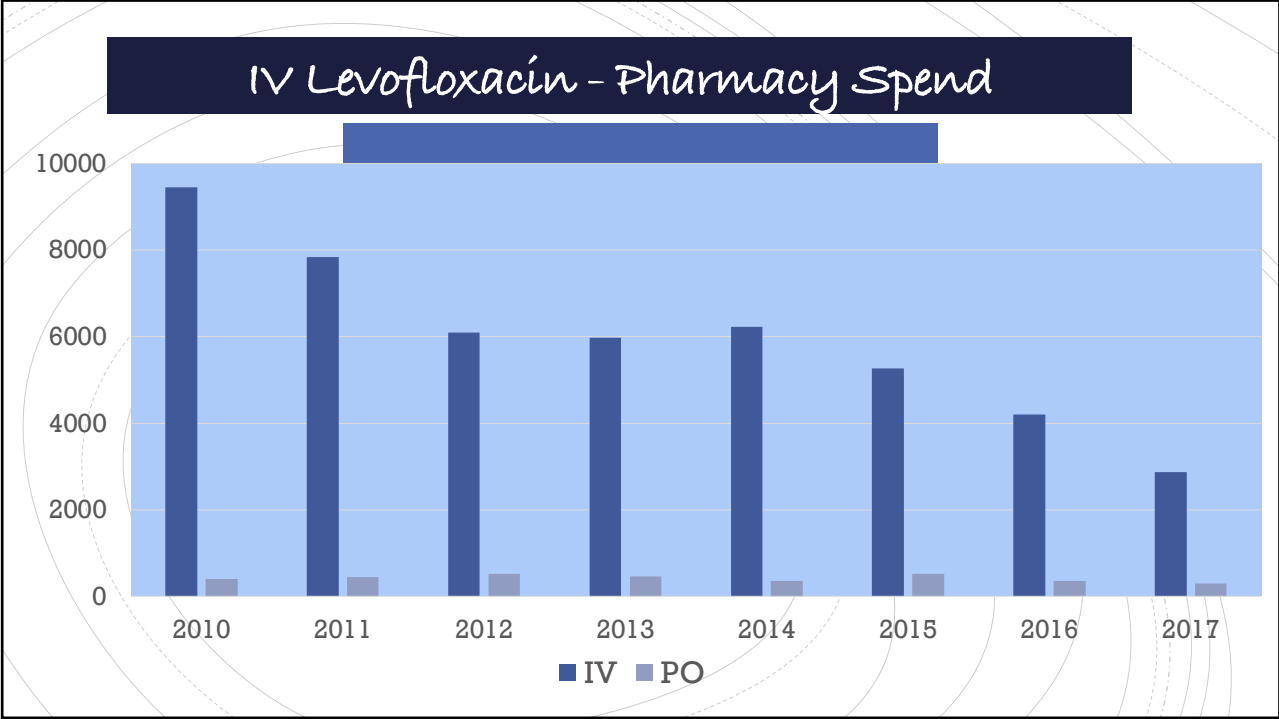
- Reduced costs
 - Medication, IV sets/pumps, pharmacy preparation time, nursing administration time
 - Decreased hospital lengths of stay
- Easier for patients to begin ambulating
- Decreased risk of phlebitis
- More convenient to acquire, store, and administer
- **Reduced risk of secondary nosocomial infections associated with IV lines!**

Automatic IV to PO Conversion

Current Status: Active		PolicyStat ID: 2181672	
		Effective:	10/2016
		Approved:	10/2016
		Last Revised:	10/2016
		Next Review:	10/2018
		Owner:	Sarah Rittscher: Registered Pharmacist
		Policy Area:	Pharmacy Protocols
		References:	
		Applicability:	Faith Regional Health Services

Pharmacist Directed Adjustments Pharmacy Protocol

- A report listing patients eligible for IV to PO conversion based on medication is generated through the electronic surveillance program (example: Senti7)
- The pharmacist assigned to the unit (Mon-Fri) will evaluate whether the patients listed meet criteria to be switched from IV to PO
- Pharmacists may automatically make IV to PO conversions for patients meeting all defined criteria



Objective 3

Analyze how contaminated urinalysis specimens effect treatment of urinary tract infections.




Why is UA
contaminatio
n
detrimental?

- If a urinalysis is contaminated, it is rejected for further culture by the microbiology laboratory
- If rejected, providers will not have ANY culture information about which organism (if any!) is causing the urinary tract infection (UTI), and will not have ANY information about which antibiotics will work effectively and which will not
- If UTI is not treated adequately, it may lead to future infections
- Median UA contamination rate ~15%, with the lowest performing labs reporting contamination rates of 41.7%

Bekeris LG, Jones BA, Walsh MK, et al. Urine culture contamination: A College of American Pathologists q-probes study of 127 laboratories. *Archives of pathology and laboratory medicine*. 2008; 132(6), 913-917.

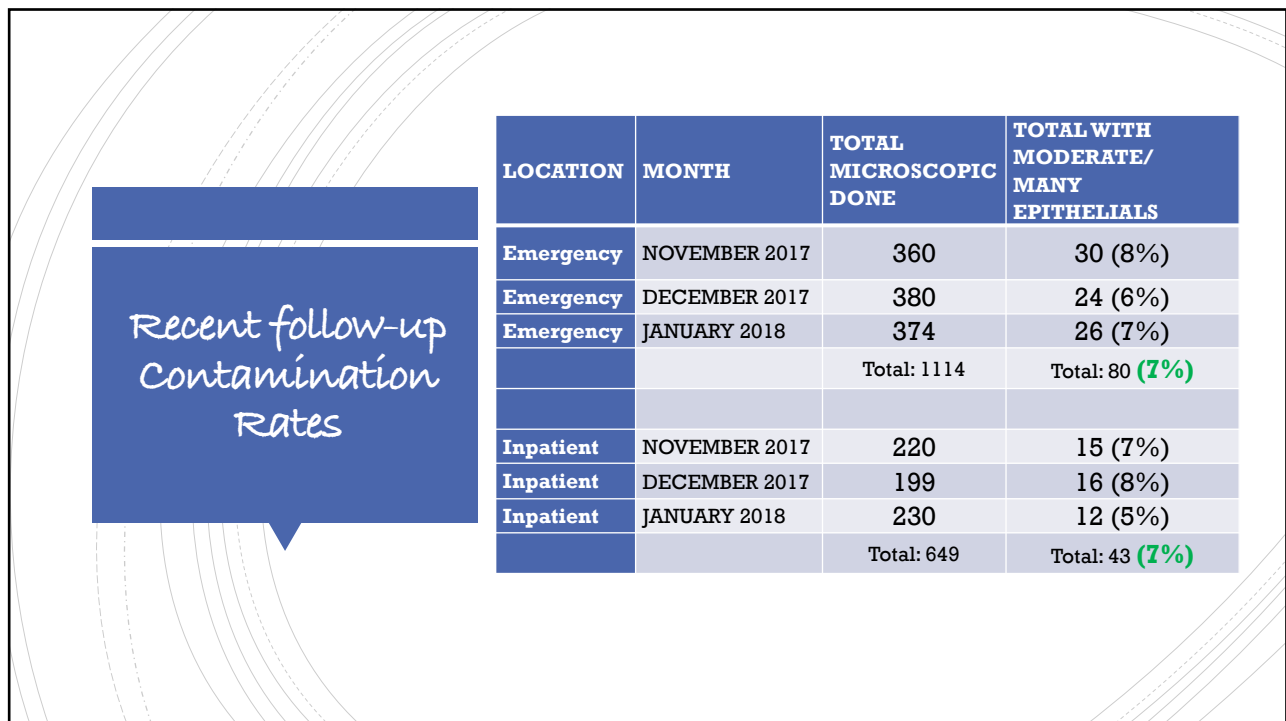
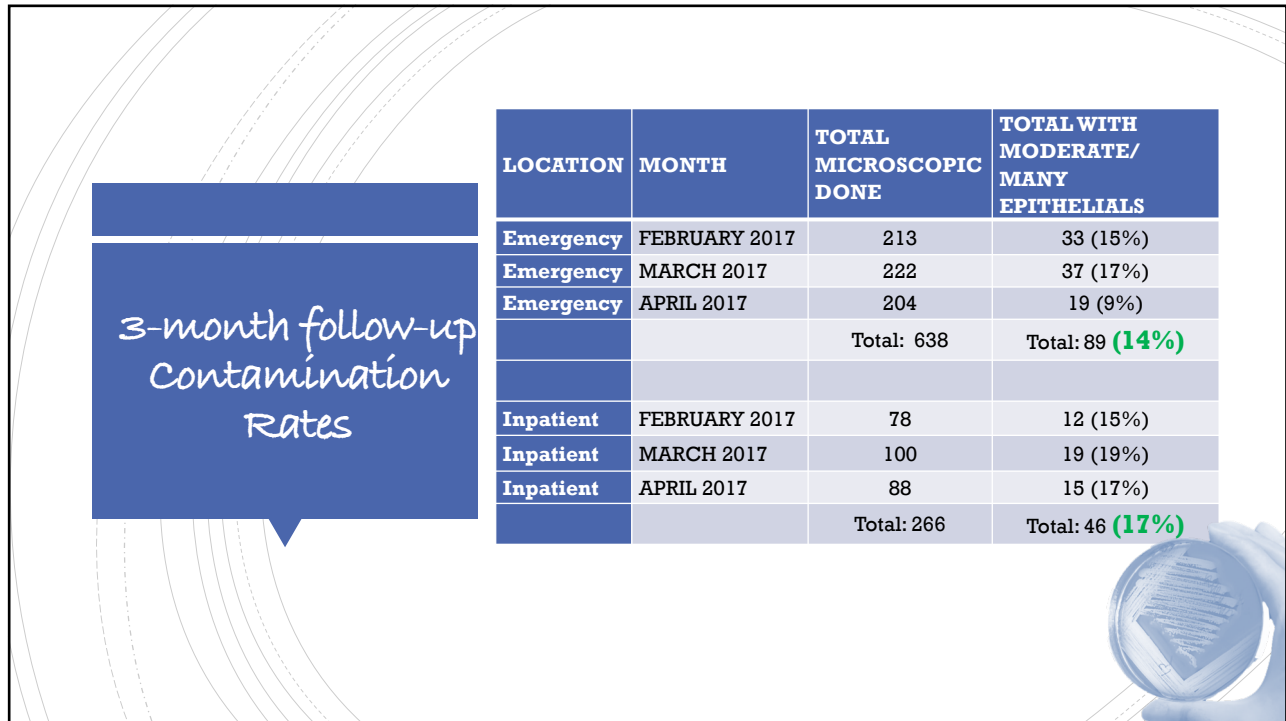
Baseline
Contamination
Rates

LOCATION	MONTH	TOTAL MICROSCOPIC	TOTAL WITH MODERATE/MANY EPITHELIALS
Emergency	AUGUST 2016	256	76 (30%)
Emergency	SEPTEMBER 2016	217	57 (26%)
Emergency	OCTOBER 2016	235	46 (20%)
		Total: 708	Total: 179 (25%)
Inpatient	AUGUST 2016	106	36 (34%)
Inpatient	SEPTEMBER 2016	88	24 (27%)
Inpatient	OCTOBER 2016	75	25 (34%)
		Total: 269	Total: 85 (32%)



Barriers
identified to
successful UA
collection

- Patients in the emergency room often collect their own UA samples
 - No signs in restrooms showing patient how to properly collect a specimen
- UA collection kit difficult for nursing/patients to use successfully without touch contamination
- Kit did not include towelettes for cleaning prior to UA specimen collection



Summary

- Promoting antibiotic stewardship efforts for effective antibiotic therapy reduces infections.
- IV to PO conversion of antibiotic therapy is a method to reduce hospital-acquired infections.
- Contaminated urinalysis specimens prevent effective treatment of urinary tract infections, and may lead to subsequent infections.

Thank you!

Jenna Preusker, Pharm.D., BCPS
jpreusker@frhs.org
402-644-7523