UWTASP tele-antimicrobial stewardship program | echo

April 18, 2023

SHEA Conference Highlights

- Speakers: Chloe Bryson-Cahn, MD, Whitney Hartlage, PharmD, Will Simmons, MD
- Case Discussions
- Open Discussion

Project ECHO

To screen or not to screen; pre-emptive strategies to address colonization with C.diff

Scott Curry, MD, MS

Curtis Donskey, MD

C.diff Colonization

Scott Curry, MD, MS

- Asymptomatic carriers of C.diff > pts with CDI
- Most never diagnosed with CDI (>85%)
- But, colonization is important source of incident CDI
  - In one Curry study:
    - 30% HO-CDI liked to Asx carriers
    - 30% HO-CDI linked to other CDI patient

But Does Screening Help?

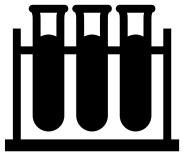
Curtis Donskey, MD

- Some data say yes, but data are limited
- Hard to study screening alone as an intervention
- **Not everyone is a super spreader**
- 3 studies showing decrease
  - Surgical wards with frequent outbreaks
  - Acute care
  - Stem cell transplant
- 2 studies showing not effective
  - Acute care during outbreak setting
  - BMT unit

Ongoing Questions

Scott Curry, MD, MS

NHSN



So, what do we do?

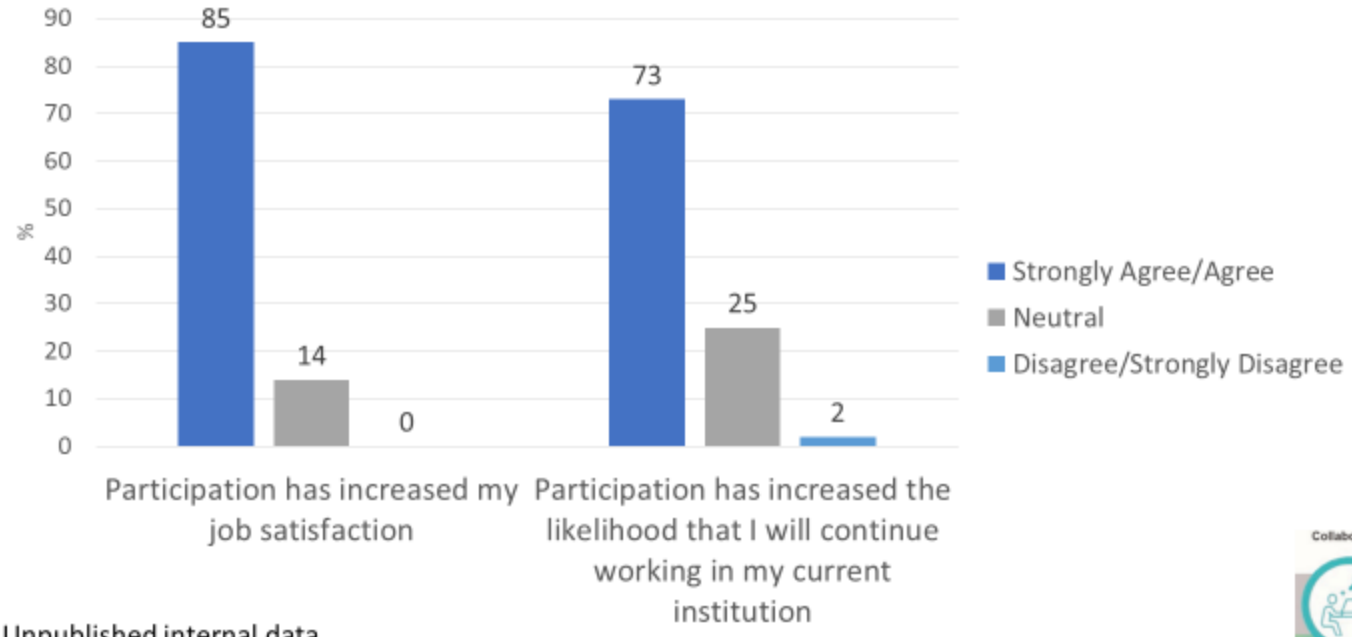
Scott Curry, MD, MS

- Before considering asymptomatic screening. Get consistent on all these things:
  - Terminally disinfect all rooms with anti-C.diff sporocidal agent
    - With auditing
  - Get HH > 95%
  - Standard precautions for pts with fecal incontinence
  - Contact precautions for CDI at least for sx duration
  - Access to a highly sensitive test

Tele-Antimicrobial Stewardship

HCW Retention

Annual Survey (May 2022) – 60% response rate



CSiM

Unpublished internal data

Collaborative

The Dogmas of Stewardship: Moving the Needle

Emily Spivak, MD

University of Utah School of Medicine and Salt Lake City VA

James Lewis, PharmD

Oregon Health & Sciences University

How We Got Here and What We're Up Against

- Many ID practices based on case series from 1940s and 1950s
  - Starting point = dogma, dictum, tradition, low quality evidence
- Practices often maintained due to lack of new data
  - "How we've always done it…"
- Dogmas reinforced by past experience and clinical guidelines
  - Comfort with dogma → "standard of practice"
- Barrier to change as new & higher quality evidence becomes available
  - Dogma > evidence

Wald-Dickler N, et al. Am J Med. 2022 Mar;135(3):369-379.e1

1) Short Course Therapy

IDSA Guidelines: Uncomplicated UTIs & CAUTI = Confusing

Type	Antibiotic	Duration
Cystitis	Fosfomycin	1 dose (A-I)
	TMP-SMX	3 days (A-I)
	Fluoroquinolone	3 days (A-I)
	Nitrofurantoin	5 days (A-I)
	Beta-lactam	5-7 days (B-I)
Pyelonephritis	Fluoroquinolone	5-7 days (A-I)
	Beta-lactam	10-14 days
	TMP-SMX	14 days (A-I)
CAUTI	Any	Prompt-response: 7 days (A-III) Delayed-response: 10-14 days (A-III)
	Catheter removed (cystitis + female)	3-5 days (B-II)

CAUTI: catheter-associated urinary tract infection
TMP-SMX: trimethoprim-sulfamethoxazole

Gupta K, et al. Clin Infect Dis 2011;52(1):e103
Hooton TM, et al. Clin Infect Dis 2010;50(1):625

1) Short Course Therapy

Antimicrobial Stewardship & Healthcare Epidemiology (2022), **2**, e171, 1–4
doi:10.1017/ash.2022.317

SHEA

Concise Communication

Three-day ceftriaxone versus longer durations of therapy for inpatient treatment of uncomplicated urinary tract infection

Balsam Elajouz PharmD[1], Lisa E. Dumkow PharmD, BCIDP[1,2], Lacy J. Worden PharmD[1,2], Kali M. VanLangen PharmD, BCPS[1,3] and Andrew P. Jameson MD, FACP, FIDSA[2,4]

[1]Department of Pharmacy, Trinity Health Saint Mary's, Grand Rapids, Michigan, [2]Division of Infectious Diseases, Trinity Health Saint Mary's, Grand Rapids, Michigan, [3]College of Pharmacy, Ferris State University, Big Rapids, Michigan and [4]College of Human Medicine, Michigan State University, Grand Rapids, Michigan

- Background: IDSA guidelines do not address appropriate durations of therapy for hospitalized patients with uUTI
  - Often receive IV antibiotics and prolonged course
- Retrospective cohort study
- Hospitalized patients aged ≥18 years receiving antibiotics for documented symptomatic uUTI with a positive urine culture
- Between July 1, 2015, and June 30, 2021
  - ASP began recommending a 3-day course of Ceftriaxone for inpatient uUTI in 2019

- 3-day Ceftriaxone group
  - Excluded if received an empiric dose of another antibacterial agent
- Longer-DOT group
  - Must have received at least 5 days of any antimicrobial therapy

Primary outcome	• Clinical cure • Resolution of uUTI symptoms at 24 hours following antibiotic completion or improvement to complete antibiotics at home for patients in the longer-DOT group who had not completed antibiotics prior to discharge
Secondary outcomes	• Hospital LOS, 30-day UTI-related return visit due to UTI, development of Clostridiodes difficile within 30 days, and adverse drug events

Antimicrob Steward Healthc Epidemiol. 2022; 2(1): e171.

1) Short Course Therapy

Results

Table 2. Patient Outcomes

Variable	uUTI Therapy		*P* Value
	3-Day CRO (n=51)	Longer-DOT (n=49)	
Clinical cure, no. (%)	51 (100)	49 (100)	1
Hospital length of stay, median d (IQR)	5 (4–7)	4 (3–6.5)	.48
C. difficile, no. (%)	1 (2)	3 (6.1)	.36
30-day return visit, no. (%)	7 (13.7)	3 (6.1)	.319
Female	6 (85.7)	2 (66.7)	.284
Male	1 (14.3)	1 (3.3)	1
Location of return visit, no. (%)			
Primary care office	3 (5.9)	3 (6.1)	1
Urgent care	0 (0)	0 (0)	1
Emergency department	2 (3.9)	0 (0)	.495
Hospital admission	2 (3.9)	0 (0)	.495
Adverse drug events, no. (%)	0 (0)	1 (2)	.49

Note. uUTI, uncomplicated urinary tract infection; CRO, ceftriaxone; DOT, days of therapy.

Strengths

- Generalizable inpatient population
- Symptomatic uUTI
  - AMS as sole 'urinary symptom' excluded
- Clinical cure as primary outcome

Weaknesses

- uUTI definition may still have overcalled true infection
  - Exclusion of fever?
- Underrepresentation of males
- Likely underpowered
- Prolonging unnecessary IV antibiotics?

Take Home: Consider 3 days of antibiotics (IV or PO) for inpatients with uUTI

- Consider in patients with isolated fever

Antimicrob Steward Healthc Epidemiol. 2022; 2(1): e171.

2) Static vs cidal

Busting the Myth of "Static vs Cidal": A Systemic Literature Review

Noah Wald-Dickler,[1,2] Paul Holtom,[1,2] and Brad Spellberg[1,2]

[1]Los Angeles County + University of Southern California Medical Center and [2]Division of Infectious Diseases, Keck School of Medicine at the University of Southern California, Los Angeles

- 56 trials since 1985 comparing "cidal" vs "static"
- 49 show no difference
- In 6, the static agent looked better
- 1 – the cidal looked better...but it was imi vs **tigecycline**...

"Dose the drug right and it will work. It does not matter if it is cidal or static."

Clin Infect Dis. 2018; 66: 1470.

Bundles for everything

- Valerie Vaughn, MD MSc and Julie Szymczak, PhD

- Technical interventions alone usually fail

Bundle everything

1. Convince people what you want IS the standard practice: education + guidelines

2. Attack the point of prescribing
    1. Stewardship
    2. Technical Nudges: Ordersets, automatic EMR orders

3. DATA DATA DATA

Julie Szymczak: Perfect Slide

The 3 Cs of Stewardship Communication

Communication

In what format will you communicate your antibiotic stewardship recommendation to prescribers?

What team member should be contacted to have an effective discussion? (e.g., intern, resident, advanced practice provider, attending, consultant)

How will you frame the motivation around your stewardship recommendation?

Context

What are the circumstances (physical, workload, emotional) surrounding the person you will be communicating with?

How will you take into account their challenges, perspectives and professional culture when you convey your stewardship message?

What questions need to be asked to better determine the motivation and context of the prescriber?

Collaboration

How will you approach the stewardship interaction with relationship-building in mind?

How can your communication in this moment facilitate trust-building in the future?

If conflict might occur, how might you manage it?

Is follow up with the team needed? Should other resources be suggested?

Wang R, et al. Open Forum Infect Dis. 2021 May 8;8(6):ofab231

Scott Curry – Micro reporting

1. Cascading results: can I guide providers with micro results

2. The molecular blood culture hall of shame

Cascading: bad vs. good

TESTS	RESULT	FLAG
Urine Culture,Comprehensive		
Urine Culture,Comprehensive	Final Report	
Result 1		
Escherichia coli		**Abnormal**
Greater than 100,000 colony forming units per		
Result 2		
Klebsiella pneumoniae		**Abnormal**
50,000-100,000 colony forming units per mL		
Antimicrobial Susceptibility		
** S = Susceptible; I = Intermediate; R		
P = Positive; N = Negative		
MICS are expressed in micrograms p		

Antibiotic	RSLT#1	RSLT#2
Amoxicillin/Clavulanic Acid	S	R
Ampicillin	S	R
Cefazolin	R	S
Cefepime	R	S
Ceftriaxone	R	S
Cefuroxime	R	S
Cephalothin	R	S
Ciprofloxacin	S	S
Ertapenem	S	S
Gentamicin	S	S
Imipenem	S	S
Levofloxacin	S	S
Nitrofurantoin	S	S
Piperacillin	S	S
Tetracycline	S	S

Susceptibility

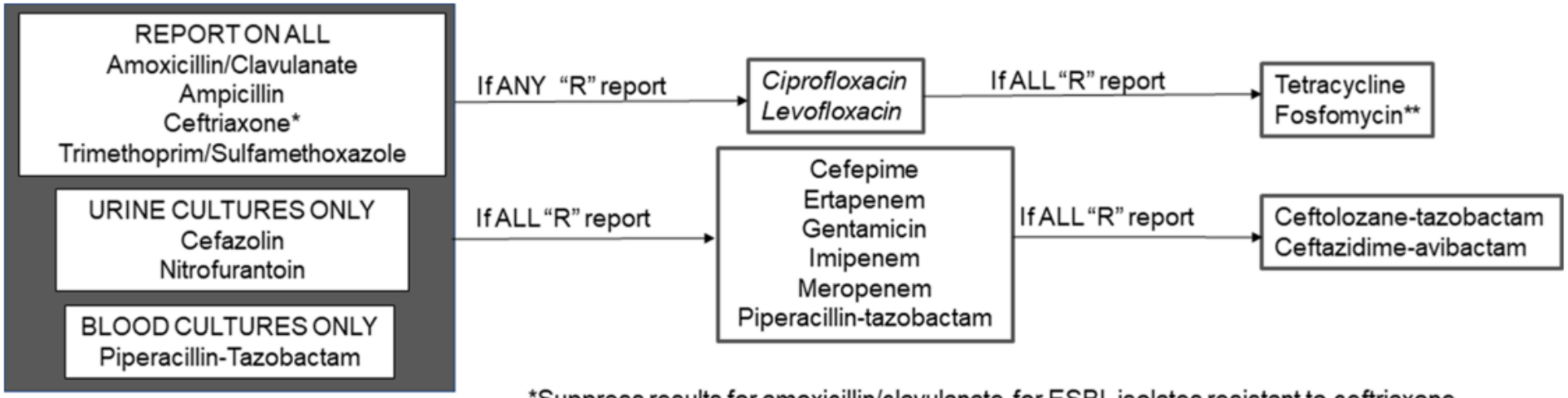
	Staphylococcus aureus MIC	
Oxacillin	0.5 µg/mL	**Sensitive**
Vancomycin	1 µg/mL	**Sensitive**

Susceptibility Comments

Staphylococcus aureus

Methicillin/Oxacillin susceptible Staphylococci isolated from blood will be susceptible to the following agents: Nafcillin, IV Beta-Lactam/Beta-Lactamase Inhibitor combos (Ampicillin/Sulbactam, Pipercillin/Tazobactam), IV Cephalosporins (Cefazolin, Ceftriaxone), and Meropenem.

Cascading: Sneaky



*Suppress results for amoxicillin/clavulanate for ESBL isolates resistant to ceftriaxone

Molecular blood culture hall of shame

Results

BLOOD CULTU

6/3/2021 3:11 PM - Interface

Specimen Information: Specimen (LAB)

Component	Value	Flag	Ref Range	Units	Status
E. faecalis, PCR	Not Detected		Not Detected		Final
E. faecium, PCR	Not Detected		Not Detected		Final
L. monocytogenes, PCR	Not Detected		Not Detected		Final
Staphylococcus species, PCR	Not Detected		Not Detected		Final
S. aureus, PCR	Not Detected		Not Detected		Final
S. epidermidis, PCR	Not Detected		Not Detected		Final
S. lugdunensis, PCR	Not Detected		Not Detected		Final
Streptococcus species, PCR	Not Detected		Not Detected		Final
S. agalactiae, PCR	Not Detected		Not Detected		Final
S. pneumoniae, PCR	Not Detected		Not Detected		Final
S. pyogenes, PCR	Not Detected		Not Detected		Final
A. baumannii complex, PCR	Not Detected		Not Detected		Final
B. fragilis, PCR	Not Detected		Not Detected		Final
Enterobacterales, PCR	Detected	!	Not Detected		Final
E. cloacae complex, PCR	Not Detected		Not Detected		Final
E. coli, PCR	Not Detected		Not Detected		Final
K. aerogenes, PCR	Not Detected		Not Detected		Final
K. oxytoca, PCR	Not Detected		Not Detected		Final
K. pneumoniae group, PCR	Detected	!	Not Detected		Final
Proteus species, PCR	Not Detected		Not Detected		Final
Salmonella species, PCR	Not Detected		Not Detected		Final
S. marcescens, PCR	Not Detected		Not Detected		Final
H. influenzae, PCR	Not Detected		Not Detected		Final
N. meningitidis, PCR	Not Detected		Not Detected		Final
P. aeruginosa, PCR	Not Detected		Not Detected		Final
S. maltophilia, PCR	Not Detected		Not Detected		Final
CTX-M, PCR	Detected	!	Not Detected		Final
IMP, PCR	Not Detected		Not Detected		Final
KPC, PCR	Not Detected		Not Detected		Final
mcr-1, PCR	Not Detected		Not Detected		Final
NDM, PCR	Detected	!	Not Detected		Final
OXA 48 LIKE, PCR	Not Detected		Not Detected		Final
VIM, PCR	Not Detected		Not Detected		Final
C. albicans, PCR	Not Detected		Not Detected		Final
C. auris, PCR	Not Detected		Not Detected		Final
C. glabrata, PCR	Not Detected		Not Detected		Final
C. krusei, PCR	Not Detected		Not Detected		Final
C. parapsilosis, PCR	Detected	!	Not Detected		Final
C. tropicalis, PCR	Not Detected		Not Detected		Final
C. neoformans/gattii, PCR	Not Detected		Not Detected		Final
Comment	PENDING				Incomplete

NAAT detection of positive blood cultures is a **great step forward**

Display of raw NAAT data for blood cultures is a **great step backward**

Report at left should have said:

Klebsiella pneumoniae group, CRE by PCR

Candida parapsilosis by PCR

Antimicrobial susceptibility testing to follow.

Justified Mistrust
Jasmine Marcelin MD

- Lots of people have multiple good reasons to not trust the healthcare system
  - Historical trauma
  - Ongoing discrimination
  - Under-resourced supports
  - Prior bad experiences with healthcare
  - Healthcare system/economy feels like it isn't for them

- What about unjustified mistrust?
  - Is there such a thing?