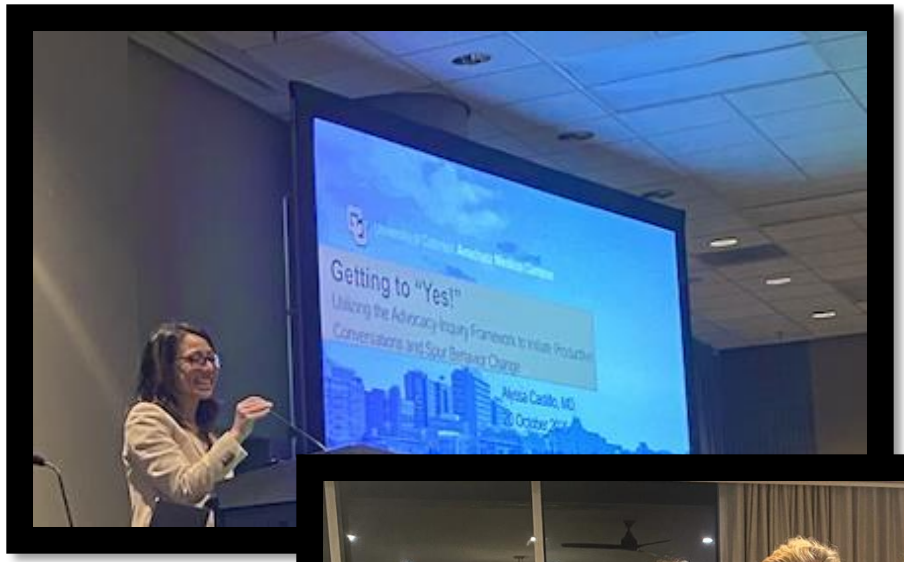
IDWeek 2025 Highlights Pt. 2

December 2, 2025

Alyssa Castillo, MD & Whitney Hartlage, PharmD

No conflicts of interest to disclose.

The real highlights ☺



Influential Publications in AMS

Erin McCreary, PharmD (she/her/hers)
Director of Infectious Diseases Improvement and Clinical Research Innovation
University of Pittsburgh Medical Center
Pittsburgh, PA, United States

Real-word utility of procalcitonin in patients hospitalized with community-acquired pneumonia: A matched cohort study

Mayo Clinic Enterprise, matched adult patients with CAP based on PCT testing or not within first 7 days of hospitalization

15364 patients met inclusion criteria

6515 (42.4%) patients received 8214 PCT tests

12880 matched patients

ABX treatment longer with PCT: 5.1 vs 4.6 days (P<0.001)

DOT longer with PCT (8.6 vs 7.6 DOT, *P* < 0.001)

LOS longer with PCT (6.8 vs 5.9 days, *P* < 0.001)

PCT testing in patients hospitalized with CAP was not associated with reduced antimicrobial utilization, LOS, or 30-day all-cause mortality.

Ilges D, et al. Infect Control Hosp Epidemol. 2025.

Influential Publications in AMS

Erin McCreary, PharmD (she/her/hers)
Director of Infectious Diseases Improvement and Clinical Research Innovation
University of Pittsburgh Medical Center
Pittsburgh, PA, United States

Influence on Antimicrobial Stewardship:

Stop offering procalcitonin testing

Integrating Environmental Sustainability into ID

Shreya Doshi, MD, MPH (she/her/hers)
Fellow
Children's National Health System
Washington DC, DC, United States

Hospitals are increasingly allocating FTE for Medical Directors of Sustainability : but most ID physicians unaware!

How many MDS/CDS are there?
- **21 MDS in the U.S. (1 from ID)**
- 2 MDS in Canada

Who do MDS/CDS report to?
- President
- Vice President
- Chief Medical Officer

What is the dedicated capacity for MDS/CDS?
- Range from 0.075 to 0.6 FTE
- Two serve as volunteers

What specialties do MDS/CDS bring?
- Wide-ranging

Cleveland Clinic · Mass General Brigham · Yale NewHaven Health · Northwell Health · Boston Medical Center · University of California UC Health · Stanford Medicine Health Care · Keck Medicine of USC · St Luke's · Mount Sinai · UMassMemorial · U HEALTH University of Utah · UPMC Life Changing Medicine · Beth Israel Lahey Health Beth Israel Deaconess Medical Center · NYC Health+ Hospitals · UW Health · Health Care Without Harm

Given our leadership and collaborative experience in IPC & ASP, we can be leaders in healthcare sustainability!

Data : Amy Collins, MD from Healthcare without Harm

Integrating Environmental Sustainability into ID

Shreya Doshi, MD, MPH (she/her/hers)
Fellow
Children's National Health System
Washington DC, DC, United States

Greenhouse gas emissions due to unnecessary antibiotic prescriptions (from paper and plastic)

- 66 million unnecessary antibiotic prescriptions (2022) generated per-prescription waste (32g paper + 15g plastic)
- That lead to 1887 tons CO_2e emissions
- **Equivalent to 4.8 million miles driven by a gasoline vehicle or circling the Earth 194 times**

DOI: 10.1017/ash.2024.354

Integrating Environmental Sustainability into ID

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- Environmental Impact of urine analysis and urine culture at Harbor UCLA via a **"cradle to gate" Life Cycle Analysis (LCA)**

- Supplies (urine container, alcohol wipe, gloves, test tube, plastic loop, petri dish, blood agar, Vitek 2 card, Vitek MS slide) considered

- Single Urinalysis = 9g of supplies; Urine culture with positive result = 72g, collection of the urine sample=36g

- In 2022, 84,870 tests, ~45% unnecessary
  - 3093 kg of solid waste, 2339 kg of plastic waste and 13,088 kg of CO_2 emissions from supply alone
  - **Driving 335,000 miles by average gasoline powered vehicle**
  - **The plastic waste = 232,900 standard plastic waster bottles!**

Michelle LeBrun et al, CleanMed conference, 2024

Preset Antibiotic Durations for Common Infections in Urgent Care Clinics: *A Potent Antimicrobial Stewardship Tool*

Elizabeth Nothdurft, PharmD, BCPS, BCIDP, Robert Paino, MD, Nirmol Philip, MD, MPH
St. Luke's Hospital, Chesterfield, MO

- Introduced preset antibiotic durations (3 days, 5 days, and 7 days) for top 6 occurring infections in urgent care clinics (UCC):
  1) Sinusitis
  2) UTI
  3) Cellulitis
  4) Acute bronchitis
  5) Upper respiratory tract infection
  6) Pneumonia

Figure 1. The Proportion of Prescriptions with Guideline-Recommended Duration

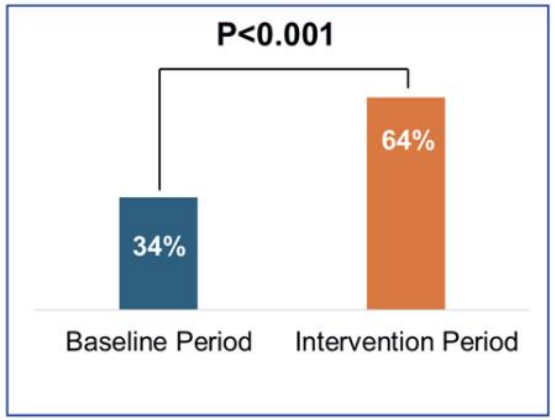
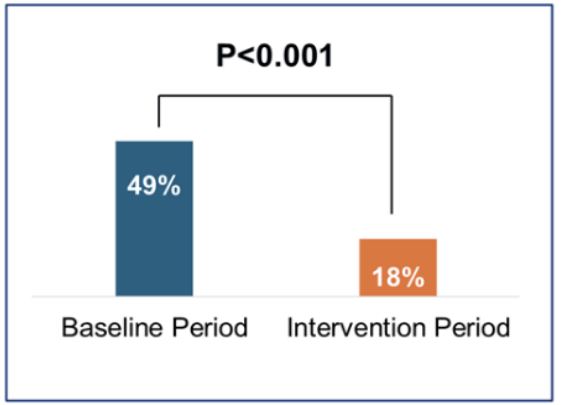


Figure 2. The Proportion of Prescriptions with Duration of 10 or More Days



- Durations decreased by an average 1.39 days

Conclusion: simple, low cost intervention in EHR nearly doubled antibiotic prescriptions that aligned for national guidelines for 6 of most common infections in their UCC

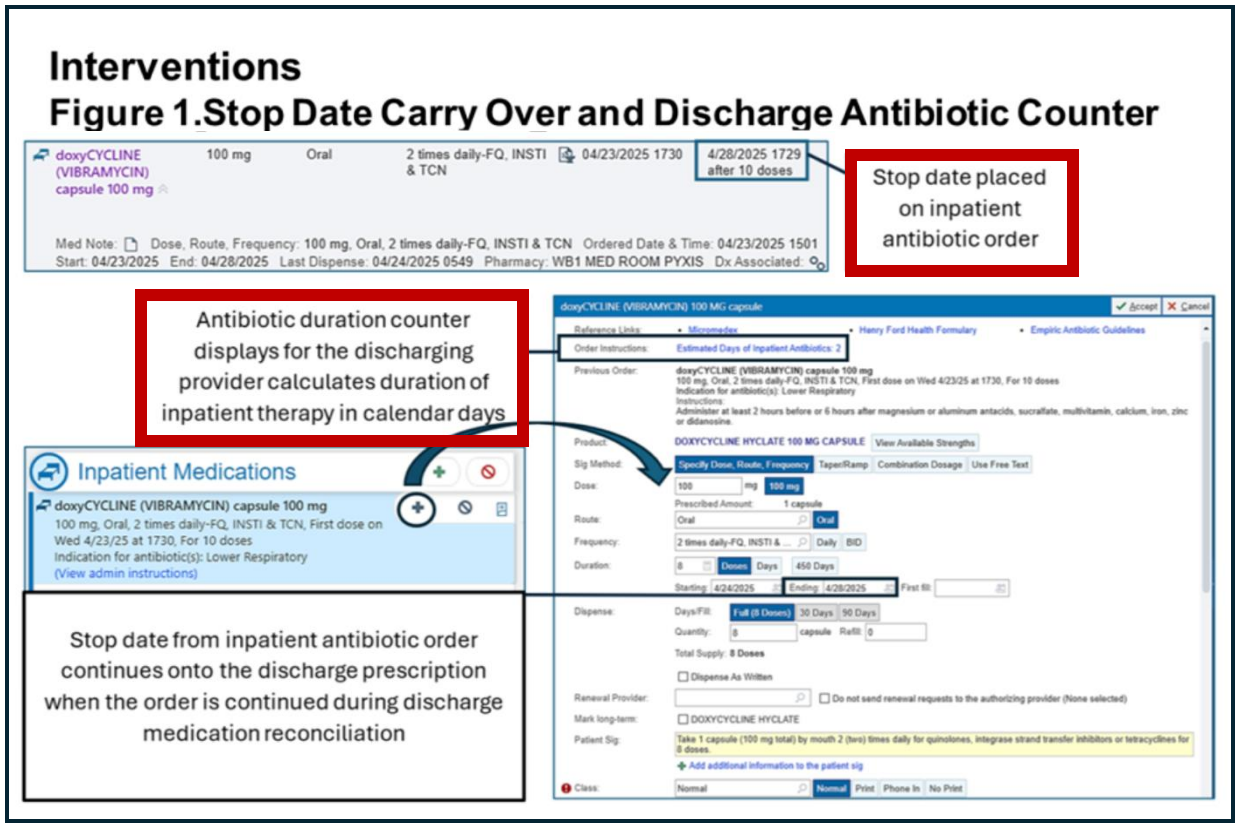
Put a CAP on Antibiotics: Electronic Medical Record Tools Improve Antibiotic Prescribing at Discharge for Community Acquired Pneumonia

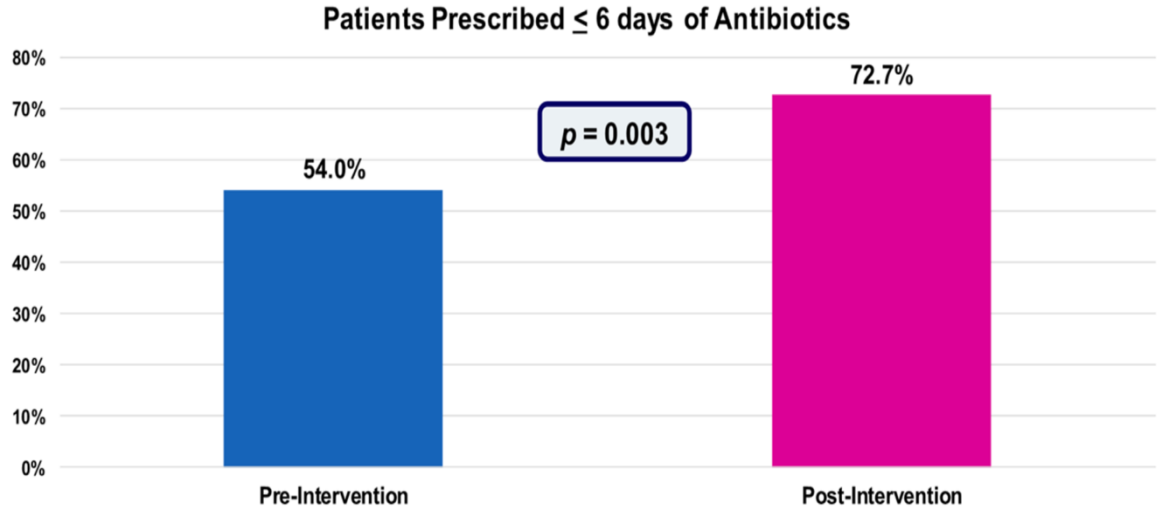
Merin Babu[1]; Amy E. Beaulac[2]; Janeen Dubay[2], Lori Leman[1]; Anita B. Shallal[3]; Erin Eriksson[4]; Sairia Dass[4]; Megan M. Cahill[1]; Rachel M. Kenney[3]; Brian Church[5]; Robert McCollom[5]; Abigail Geyer[6]; Michael P. Veve[3]; Sage Greenlee[1]
[1]Henry Ford Macomb Hospital; [2]Henry Ford West Bloomfield Hospital; [3]Henry Ford Hospital; [4]Henry Ford Jackson Hospital; [5]Henry Ford Health; [6]Henry Ford Wyandotte Hospital

- Adult patients hospitalized with CAP at 5 acute care hospitals

Interventions

Figure 1. Stop Date Carry Over and Discharge Antibiotic Counter





Conclusions:

- Adult patients were 2-fold more likely to receive appropriate duration of therapy for CAP after implementing EMR transitions of care tools without negatively impacting patient outcomes
- Continue to explore EMR functionality to optimize antibiotic durations at transitions of care

Top 10 Papers in Antimicrobial Resistance

Featured by Madison Stellfox, MD, PhD

Clinical Infectious Diseases

MAJOR ARTICLE

Preventing New Gram-negative Resistance Through Beta-lactam De-escalation in Hospitalized Patients With Sepsis: A Retrospective Cohort Study

Besu F. Teshome,[1,2] Taehwan Park,[3] Joel Arackal,[2] Nicholas Hampton,[4] Marin H. Kollef,[5] and Scott T. Micek[1,2]

[1]Department of Pharmacy Practice, University of Health Sciences and Pharmacy in St. Louis, St. Louis, Missouri, USA; [2]Center for Health Outcomes Research and Education, University of Health Sciences and Pharmacy in St. Louis, St. Louis, Missouri, USA; [3]College of Pharmacy and Health Sciences, St. John's University, Queens, New York, USA; [4]Center for Clinical Excellence, BJC Healthcare, St. Louis, Missouri, USA; and [5]Division of Pulmonary and Critical Care Medicine, Washington University School of Medicine, St. Louis, Missouri, USA

Question: Using a standard antibiotic spectrum score, does beta-lactam antibiotic de-escalation reduce the risk of subsequent resistance in hospitalized patients with gram negative sepsis?

Antibiotic De-escalation Effects on Gram (-) AMR

Featured by Madison Stellfox, MD, PhD

ANTIBIOTIC DE-ESCALATION EFFECTS ON GN AMR

Antibiotic	MSSA	MRSA	*Enterococcus*	VRE	DRSP	*Moraxella, H. flu*	*E. coli, Klebsiella*	ESBL	CRE	*Citrobacter, Enterobacter, Serratia*	*Pseudomonas*	MDRO	Anaerobes	*B. fragilis*	Atypicals	Spectrum Score
Oxacillin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Dicloxacillin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Amoxicillin	0	0	1	0	0	0	0.5	0	0	0	0	0	0	0	0	1.5
Ampicillin	0	0	1	0	0	0	0.5	0	0	0	0	0	0	0	0	1.5
Cephalexin	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
Penicillin	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2
Aztreonam	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	3
Cefazolin	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	3
Cefdinir	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	3
Ceftazidime	0	0	0	0	0	1	1	0	0	0	1	0	1	0	0	4
Ceftriaxone	1	0	0	0	1	1	1	0	0	0	0	0	1	0	0	5
Amox/clav	1	0	1	0	0	1	1	0	0	0	0	0	1	1	0	6
Pivotal beta-lactam antibiotics																
Amp/sulb	1	0	1	0	0	1	1	0	0	0	0	1	1	1	0	7
Cefepime	1	0	0	0	1	1	1	0	0	1	1	1	0	0	0	7
Ceftaroline	1	1	1	0	1	1	1	0	0	0	0	1	0	0	0	7
Ceftol/tazo	0	0	0	0	0	1	1	1	0	1	1	1	1	1	0	8
Ceftaz/avi	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	8
Pip/tazo	1	0	1	0	0	1	1	0	0	1	1	0	1	1	0	8
Ertapenem	1	0	0	0	1	1	1	1	0	1	0	1	1	1	0	9
Meropenem	1	0	0	0	1	1	1	1	0	1	1	1	1	1	0	10
Mero/vabor	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	11
Imipenem	1	0	1	0	1	1	1	1	0	1	1	1	1	1	0	11

Antibiotic De-escalation Effects on Gram (-) AMR

Featured by Madison Stellfox, MD, PhD

Study Design & Population	• Single-center (1300 bed academic hospital in Missouri), retrospective cohort study across 7 years (2010 – 2017)
	• Adults (7742) with discharge codes for sepsis, severe sepsis or septic shock
	  • ≥3 consecutive days of a beta-lactam with a spectrum score (BLSS) ≥ 7, within10 days of admission
	  • Index antibiotic for 2 consecutive days, followed by one additional day on any other beta-lactam	

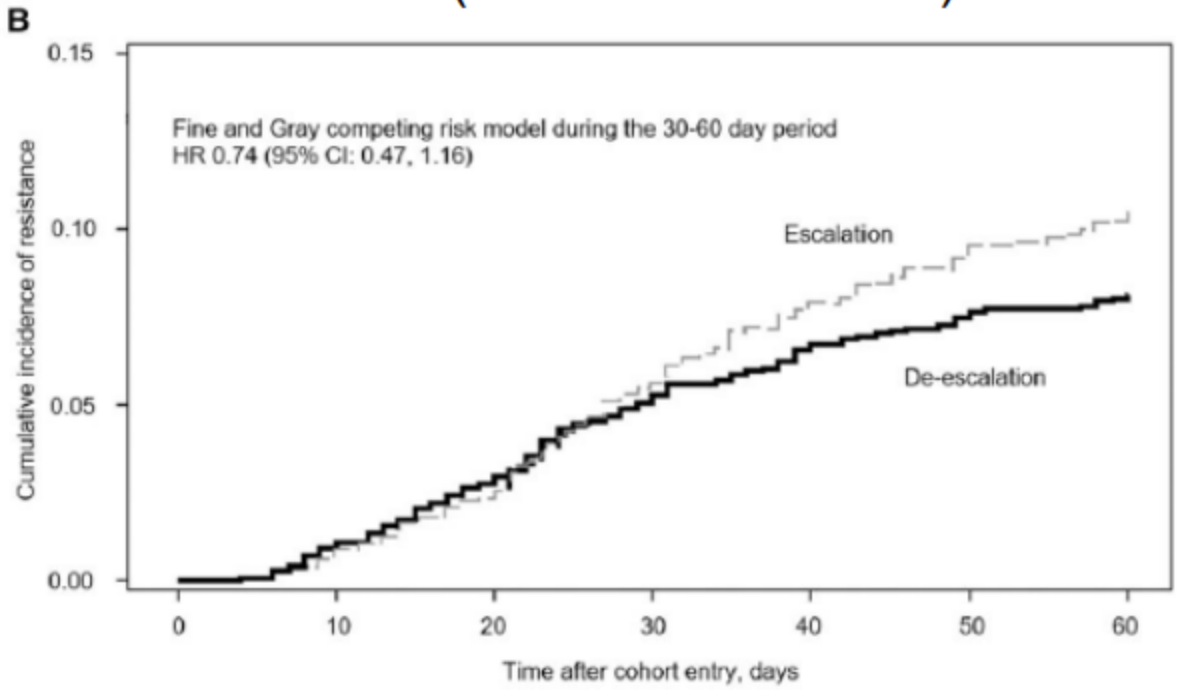
Important Definitions	New GN Resistance	3rd generation cephalosporin resistance -AND/OR- Carbapenem resistance -AND/OR- Multidrug resistance (non-susceptible to at least one agent in ≥ 3 antimicrobial categories) Not present in clinical cultures between day -90 and +3 of cohort entry
	Expected BLSS	BLSS on cohort entry x # days of beta-lactam exposure throughout follow-up period (d4 - d60)
	Actual BLSS	Total of the maximal daily BLSS throughout the follow-up period
Cohort Assignments	No change	Actual BLSS = Expected BLSS ± 10%
	De-escalation	Actual BLSS ≤ 10% of the expected BLSS
	Escalation	Actual BLSS ≥ 10% of the expected BLSS
Outcome Measurements	• New drug-resistance in the patient's specific GN pathogen(s) from a clinical culture collected between d4 and d60 • Planned subgroup analysis to assess for effects of demographics, severity of illness, clinical care and non-BL antibiotic exposure • Multiple sensitivity analyses to assess for consistency of results (survivors, cultured during follow-up, various ΔBLSS thresholds)	

Antibiotic De-escalation Effects on Gram (-) AMR

Featured by Madison Stellfox, MD, PhD

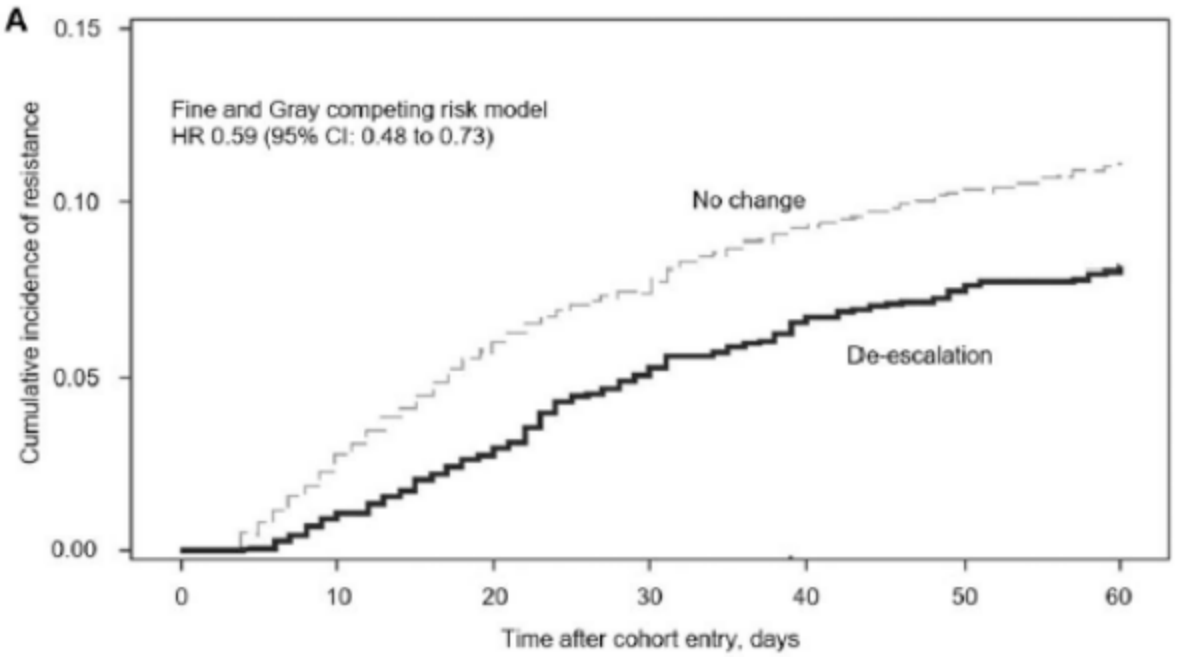
De-escalation vs Escalation

HR 0.74 (95% CI: 0.47 – 1.16)



De-escalation vs No Change

HR 0.59 (95% CI: 0.48 – 0.73)



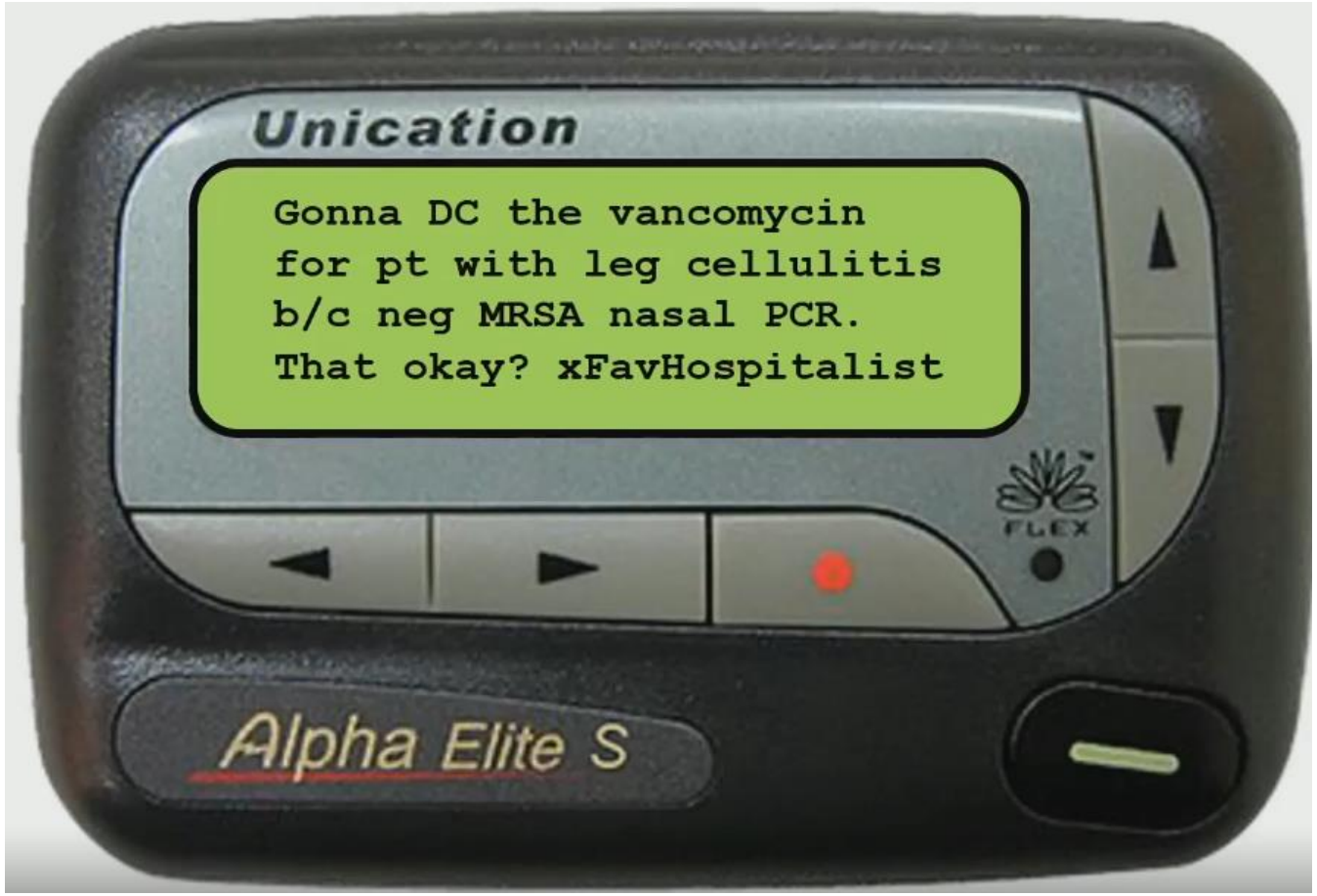
Antibiotic De-escalation Effects on Gram (-) AMR

Featured by Madison Stellfox, MD, PhD

- Major Take-Home Points:
  - Development of new gram negative resistance within 60 days of beta-lactam treatment was relatively common (8.3%) and developed quickly (mean 23.7d)
  - Overall resistance incidence rate = 1.85/1000-patient-days (95% CI: 1.71 – 2.00)
  - Statistically significant reductions in the development of new gram negative resistance in the de-escalation group compared to no change – HR 0.59
- Strengths: Used a standard definition of spectrum; 60d follow-up
- Limitations: Single health system; retrospective; did not evaluate dose, PK/PD, or drug appropriateness; did not assess for co-occurring hospital outbreaks

A Day With the Antimicrobial Stewardship Pager

Presented by Erica Stohs, MD

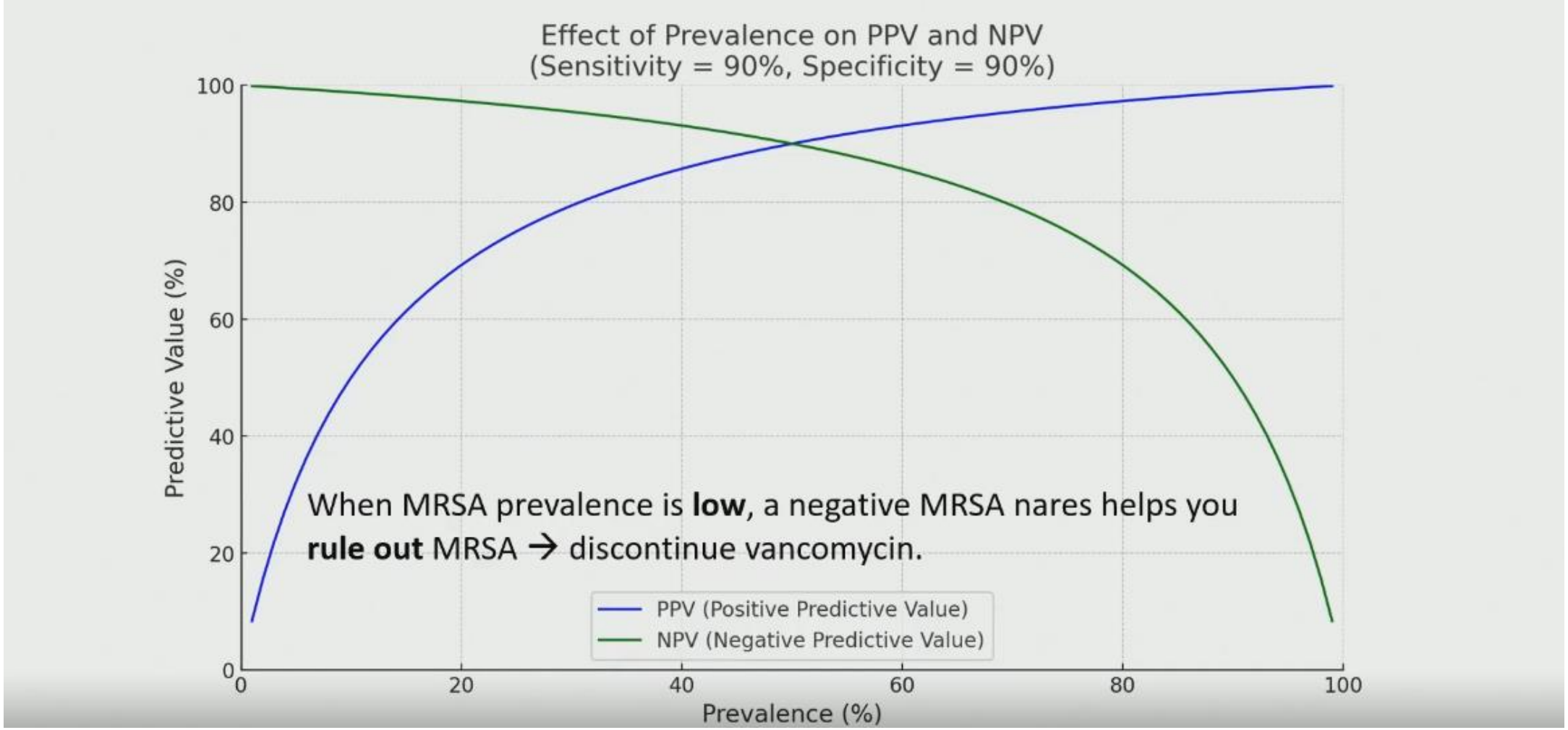


Question:

For which infectious syndromes other than pneumonia would you support de-escalation of an anti-MRSA agent in the setting of a negative MRSA nares PCR?

Can MRSA nares assist with empiric therapy outside the respiratory tract?

Presented by Erica Stohs, MD



Can MRSA nares assist with empiric therapy outside the respiratory tract?

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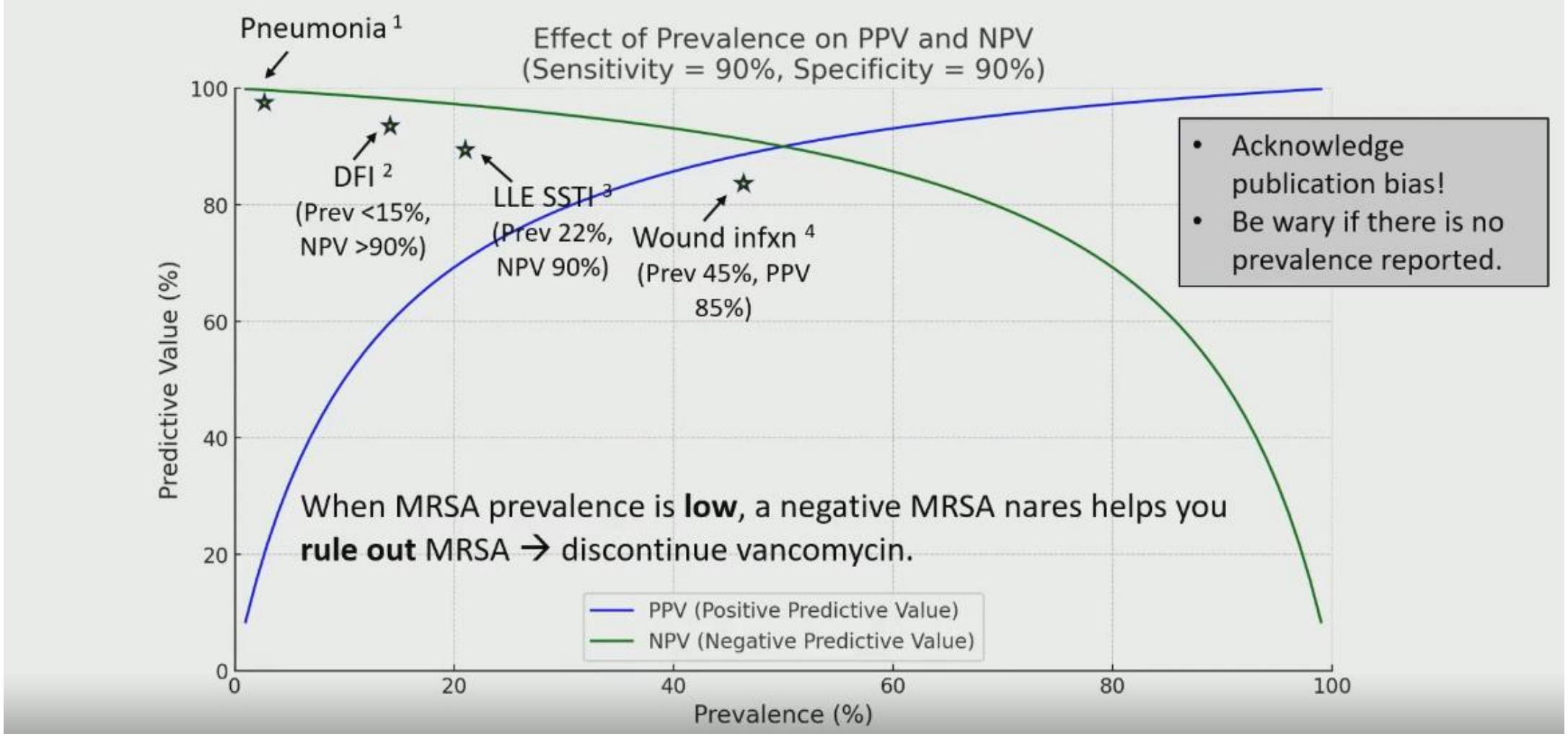

[1]Parente, et al. CID 2018. [2]Coyle, et al. J Foot Ankle Surg. 2023. [3]Mergenhagen, et al CID 2020. [4]Acquisito, et al. Emerg Med 2018.

Can MRSA nares assist with empiric therapy outside the respiratory tract?

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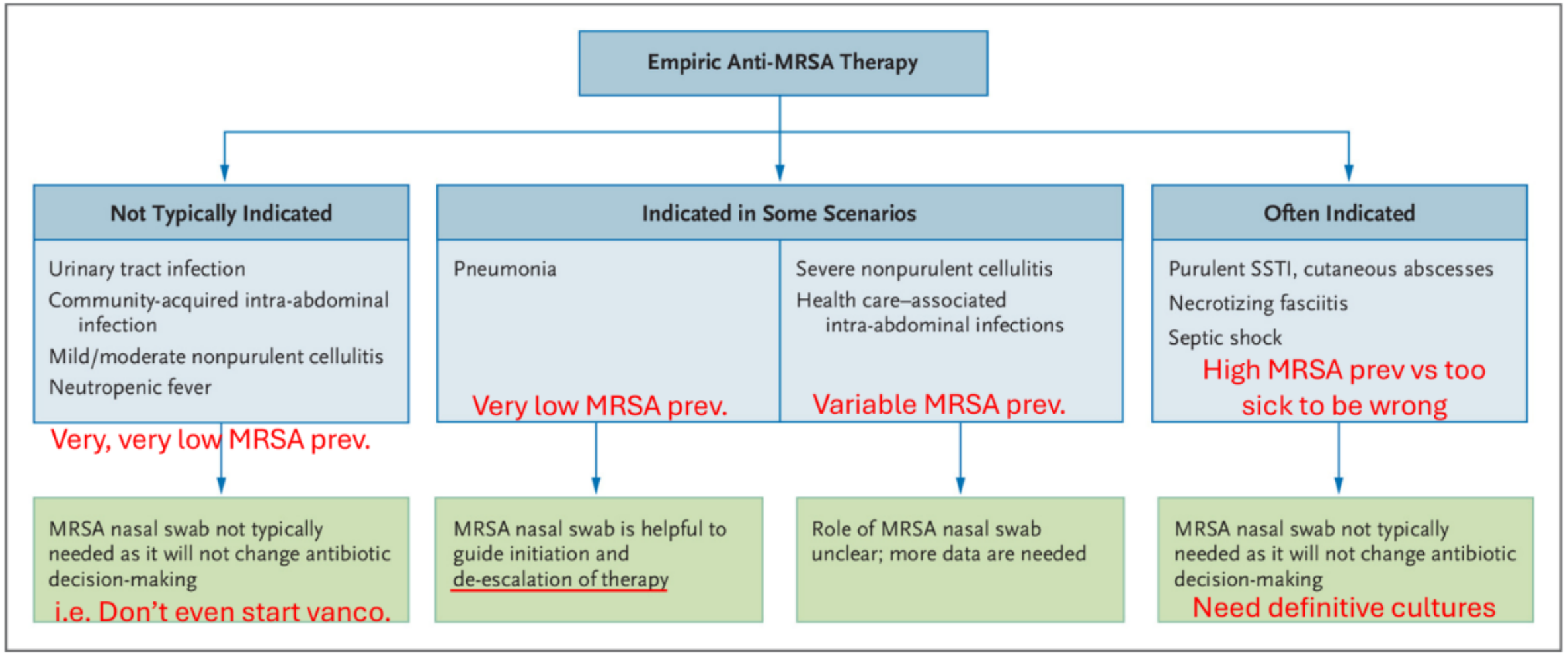
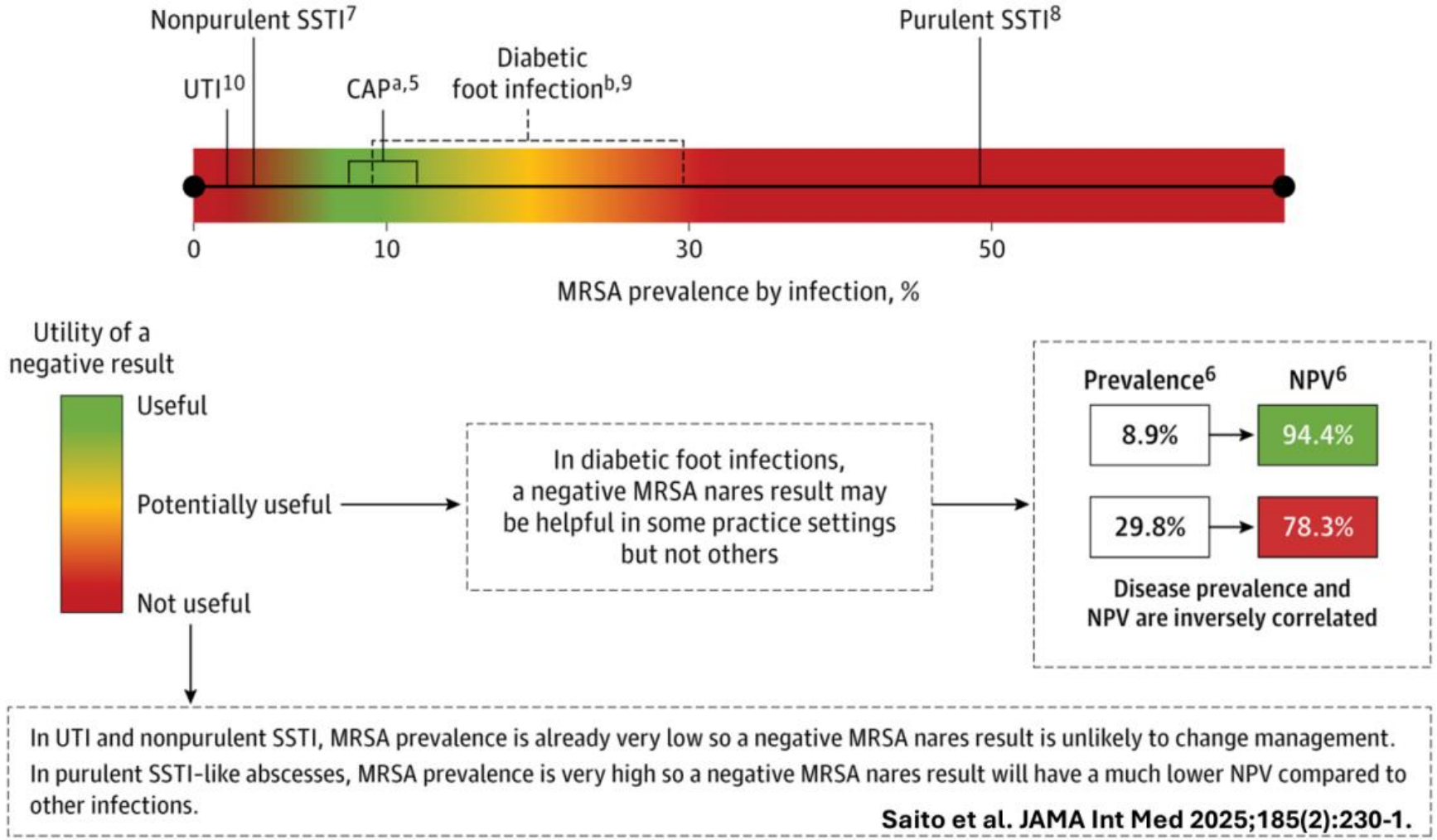


Figure credit: Liu C & Holubar M. Should a MRSA nasal swab guide empiric antibiotic treatment? NEJM Evidence 2022;1(12).

Can MRSA nares assist with empiric therapy outside the respiratory tract?

Presented by Erica Stohs, MD



“Toilet Talk”

Presented by Yanina Dubrovskaya, PharmD

- *C difficile* is a leading cause of diarrhea post-HSCT
  - 9-fold higher compared to general inpatients
  - 1.4-fold higher than other oncology patients
- *C difficile* is an independent risk factor for increased mortality, hospital LOS, and GI-GVHD.
- Prior literature in post-HSCT has shown primary vancomycin prophylaxis reduces CDI incidence to 0-2%, but did not describe rates of VRE infection

Question: Can Primary Oral Vancomycin Prophylaxis (OVP) serve as a medication strategy for incident *C difficile* infection in this high-risk population, and does it cause increased rates of VRE?

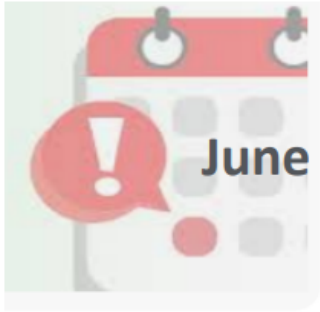
Ref: Chopra T, et al. *Clin Transplant*. 2011.

OVP to reduce CDI incidence in post-HSCT patients

Presented by Yanina Dubrovskaya, PharmD

- **HSCT and Infectious Diseases (ID) teams collaborated to develop and implement CDI prevention protocol with primary OVP for both auto- & allo-HSCT patients**

vancomycin 125 mg orally every 12 hours



ANC <1000 cells/µL or start of systemic antibiotics during transplant admission

Day of discharge or 5 days after discontinuation of systemic antibiotics

ANC: Absolute Neutrophil Count

Exclusions:

- Prior CDI
- OVP prior to study period
- Patients who did not survive peri-transplant

Primary outcome = CDI incidence during index admission

Secondary outcome = CDI within 60d, VRE within 60d, acute GVHD within 120d, hospital LOS, BSI during index admit

OVP to reduce CDI incidence in post-HSCT patients

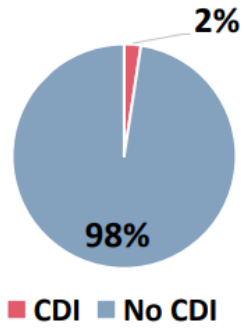
Presented by Yanina Dubrovskaya, PharmD

Primary Outcome: CDI Incidence During Index Admission

alloHSCT

OVP

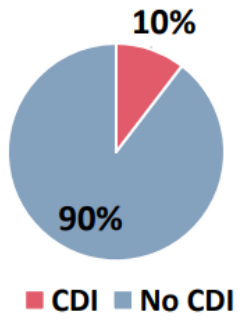
n=125



Median (IQR) days to CDI from admission:
7,9,8
n=3

No OVP

n=125



Median (IQR) days to CDI from admission:
9 (8-13)
n=13

***P*=0.010**
NNP: 13

NNP: Number needed to prophylax

Absolute Risk Reduction: -8%, 95% CI [-13.80, -2.20]

NYU Langone Health

OVP to reduce CDI incidence in post-HSCT patients

Presented by Yanina Dubrovskaya, PharmD

Allogeneic Secondary Clinical Outcomes

	OVP n=125	No OVP n=125	P Value
CDI within 30-60 days post-transplant, n (%)	0	1 (0.8)	1.000
VRE infection within 60 days post-transplant, n (%) UTI Bacteremia	2 (2) 1 2	6 (5) 2 5	0.281
Days to VRE, median (IQR)	16,24	14 (4-49)	0.383
Acute GI-GVHD within 120 days post-transplant, n (%)	5 (4)	15 (12)	**0.020**
Days to GI-GVHD within 120 days post-transplant, median (IQR)	81 (71-106)	52 (39-69)	**0.019**
Bloodstream infection during index admission, n (%) Gram-positive Gram-negative Other	42 (34) 26 18 3[a]	40 (32) 20 24 0	0.788
Bacterial infection during HSCT admission, n (%) Gram-positive Gram-negative Other	24 (19) 11 14 0	23 (18) 16 11 1[b]	0.871
Hospital LOS in days, median (IQR)	**26 (22-31)**	**27 (22-32)**	**0.860**

<u>Conclusions:</u>

"Universal Primary OVP can make a *Cdiff*-erence!"

- Reduced incidence of CDI
- No statistically significant difference in VRE infection