

Background

- Despite years of published data describing the increased risk of nephrotoxicity with use of vancomycin and piperacillin/tazobactam (VPT), this combination remains one of the most utilized antibiotic combinations at our institution. There is limited data describing the appropriateness of empiric use of this broad-spectrum regimen.

Study Objectives

Primary Objective

- To evaluate the appropriateness of the anti-methicillin resistant *Staphylococcus aureus* (MRSA), anti-pseudomonal, and anti-anaerobic spectrum of activity for patients empirically treated with this combination

Secondary Objectives

- To evaluate rates of de-escalation of empiric therapy based on culture results
- To describe the diagnostic evaluation in patients started on VPT

Methods

**Setting:** MetroHealth Medical Center in Cleveland, Ohio

- Academic teaching hospital
- Formal active antimicrobial stewardship program since 2012

**Design:** Quality improvement study

- Data was collected from MetroHealth’s electronic medical record, EPIC®

**Timeframe:** October 1<sup>st</sup>, 2019 – March 31<sup>st</sup>, 2020

Inclusion Criteria

- Patients ≥ 18 years of age
- Patients who received more than 1 dose of VPT from October 2019 through March 2020
- Randomly selected 100 unique patients

Exclusion Criteria

- No additional exclusion criteria

Results

Baseline Characteristics (n=100)

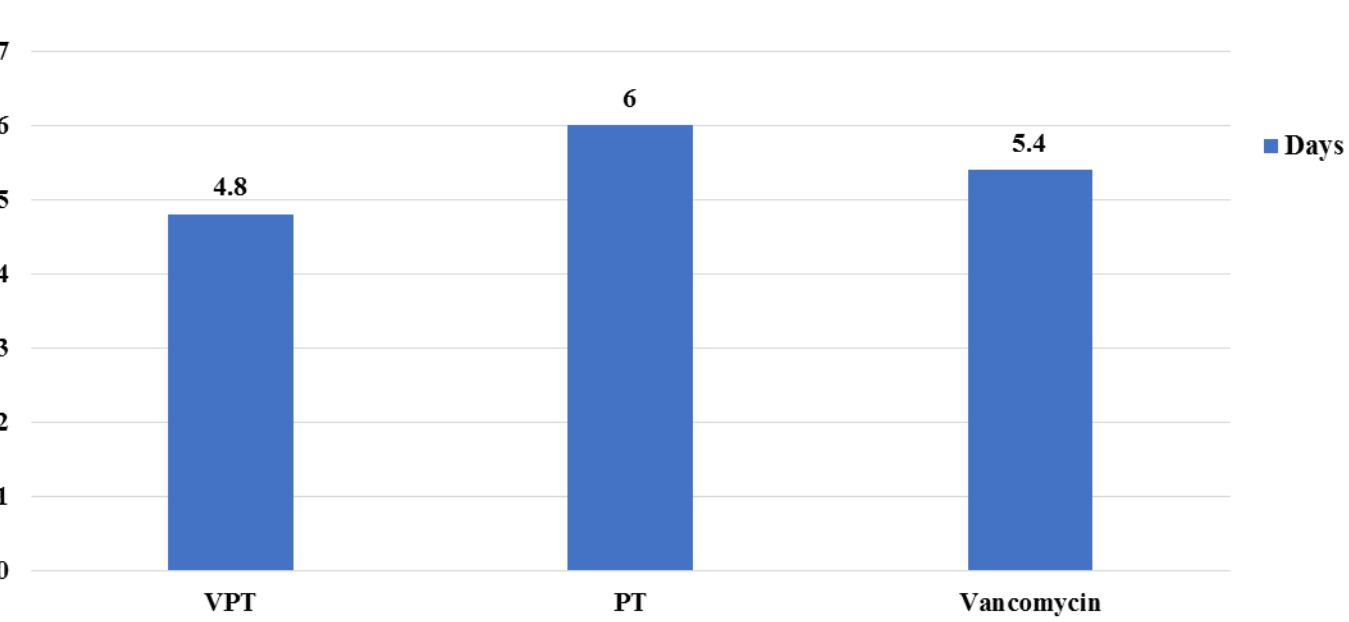
	n
Age (range)	56 (19 – 84)
Gender, Male	62
DM	26
Immunocompromised condition	24
COPD/ Interstitial lung disease	16
History of MRSA	11
History of PSDA	11
CKD	9
IVDU	8
History of AKI	5
Cirrhosis	4
History of MSSA	3

Indications for VPT

Indication	n
Pneumonia	47
Community Acquired Pneumonia	25
Hospital-/ Ventilator Acquired Pneumonia	19
Empyema	3
Skin and Soft Tissue/ Bone/ Joint Infection	30
Osteomyelitis	8
Non-Purulent Cellulitis	6
Ulcer/ Wound Infection	6
Abscess/ Perirectal Abscess	5
Necrotizing Soft Tissue Infection	2
Hardware Infection	1
Preseptal Cellulitis	1
Cat Bite	1
Bacteremia	10
Intra-abdominal Infection	5
Sepsis	2
Fever	5
Urosepsis/ Pyelonephritis/ Urinary Tract Infection	3
Central Nervous System Infection	2
Sinusitis	2
Implantable Cardioverter-Defibrillator Infection	1

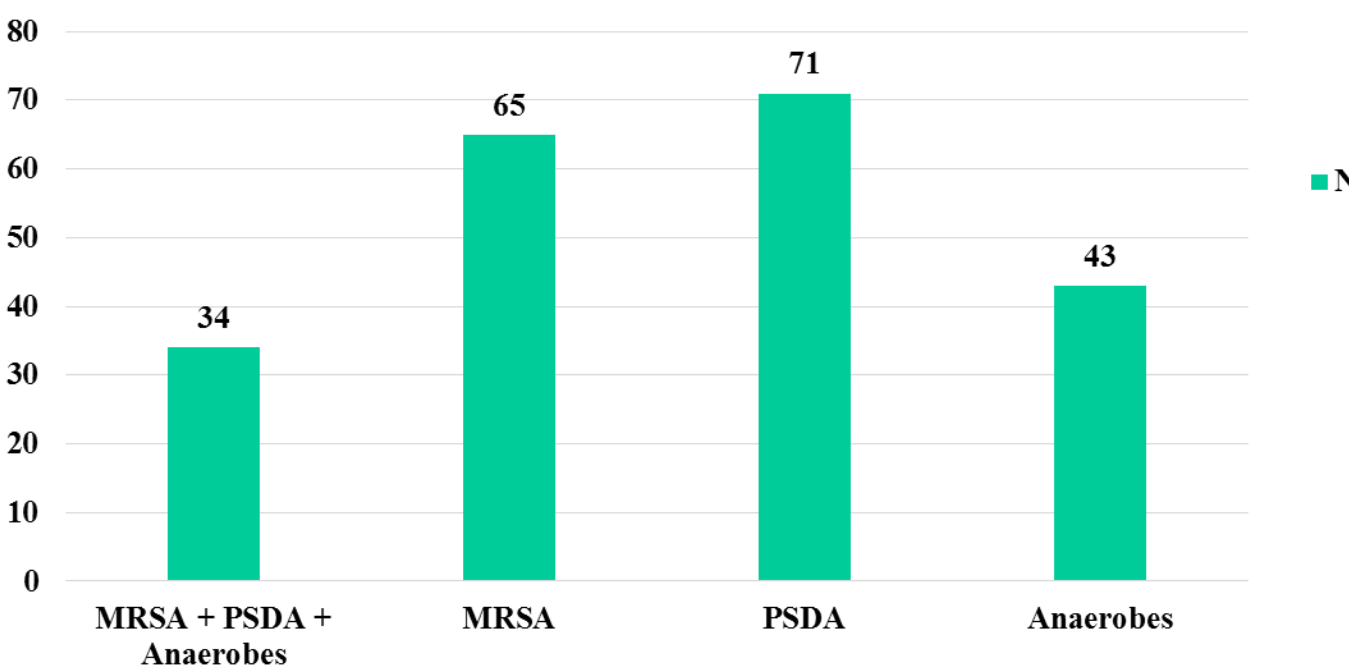
Results Continued

Mean Length of Therapy



Primary Objective:

- VPT was used as empiric treatment in 96 patients
- Appropriateness of empiric treatment (n=96)

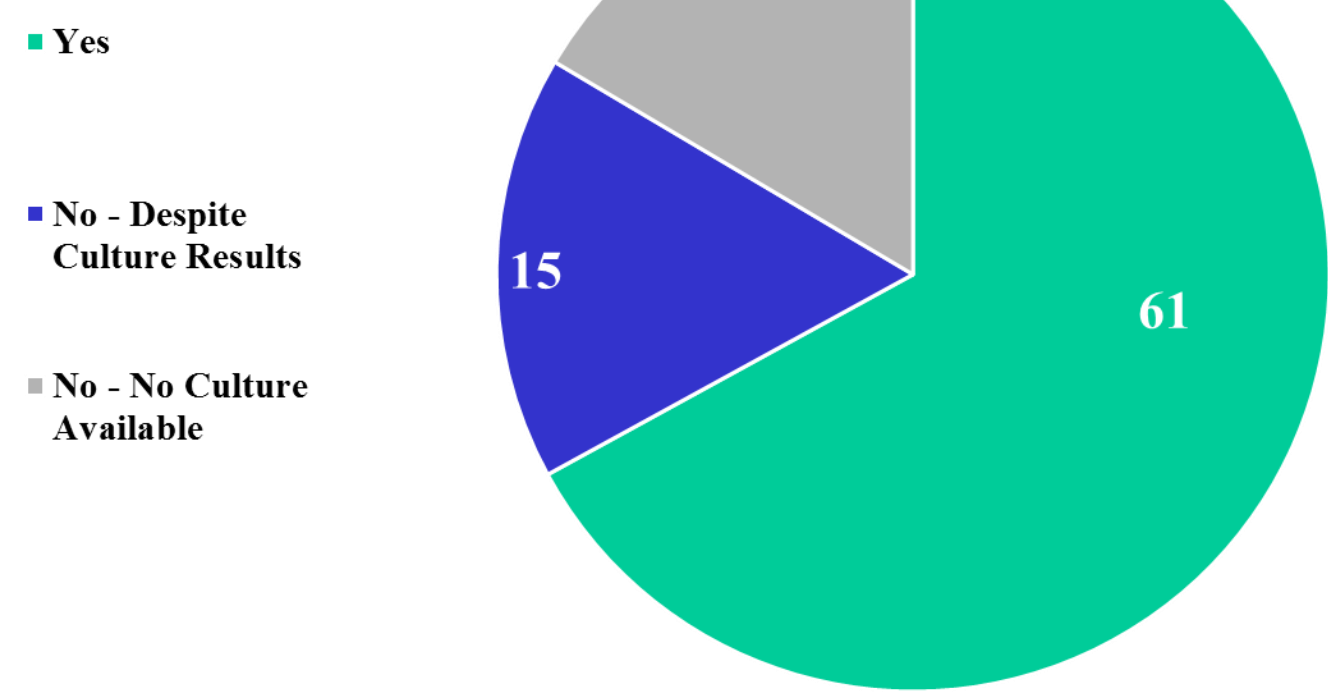


Secondary Objectives:

De-escalation of Empiric Therapy

- VPT was required in 5 patients based on culture results

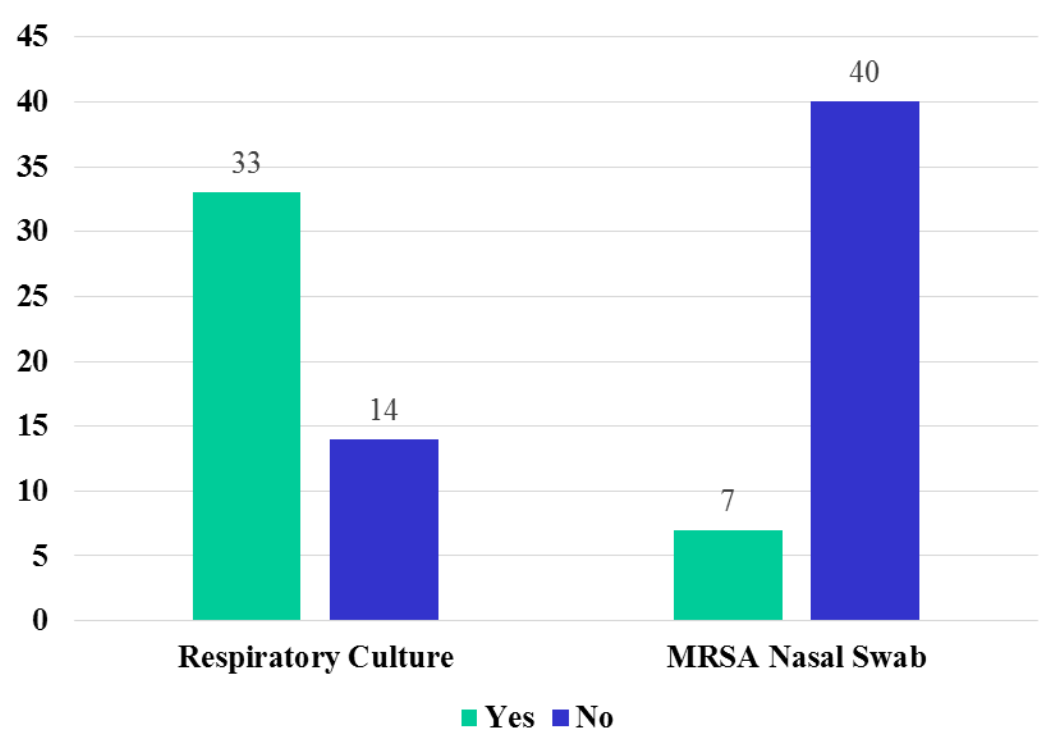
De-escalation (n=91)



Results Continued

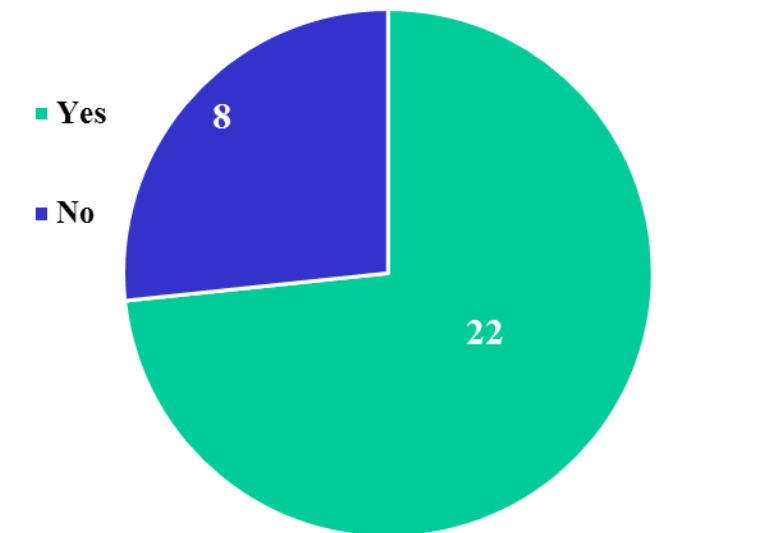
Cultures

\* Pneumonia (n=47)

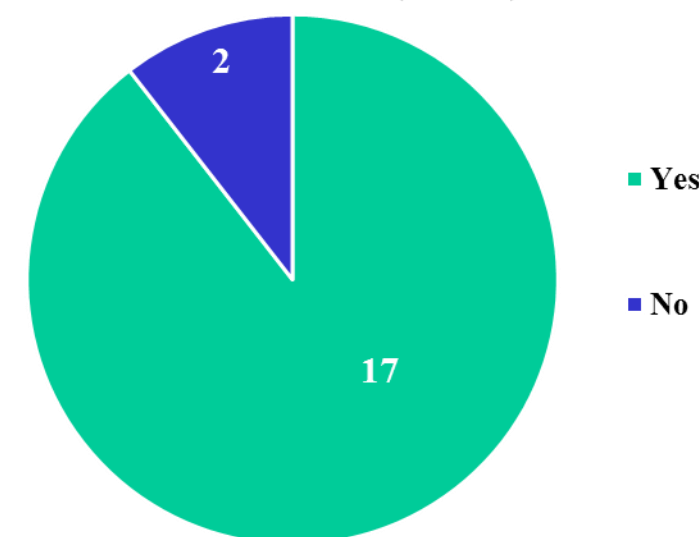


- ABSSSI/ Bone/Joint Infection (n=30)

Wound Culture (n=30)



OR Culture (n=19)



Conclusions

- At our institution VPT use was usually empiric and unnecessarily broad for the syndrome being treated
- Microbiologic testing was suboptimal and may have resulted in prolonged therapy

Future Directions

- Prospective audit and feedback for patients on VPT
- VPT antibiotic time out best practice advisory in the electronic medical record
- Hospital wide education session
- Follow up drug utilization evaluation

Disclosures

None of the authors have anything to disclose