

# IS THE EMPIRIC USE OF VANCOMYCIN IN UROLOGY INPATIENTS JUSTIFIED?

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## INTRODUCTION

- Vancomycin is routinely used for empiric Methicillin-resistant *Staphylococcus aureus* (MRSA) and *Enterococcus faecium* (*E. faecium*) coverage in urologic inpatients suspected of infection
- MRSA and *E. faecium* are rare causes of infection in the urologic inpatient population, but exact rates are unknown
- Vancomycin use has significant potential morbidity including nephrotoxicity and increasing antibiotic resistance

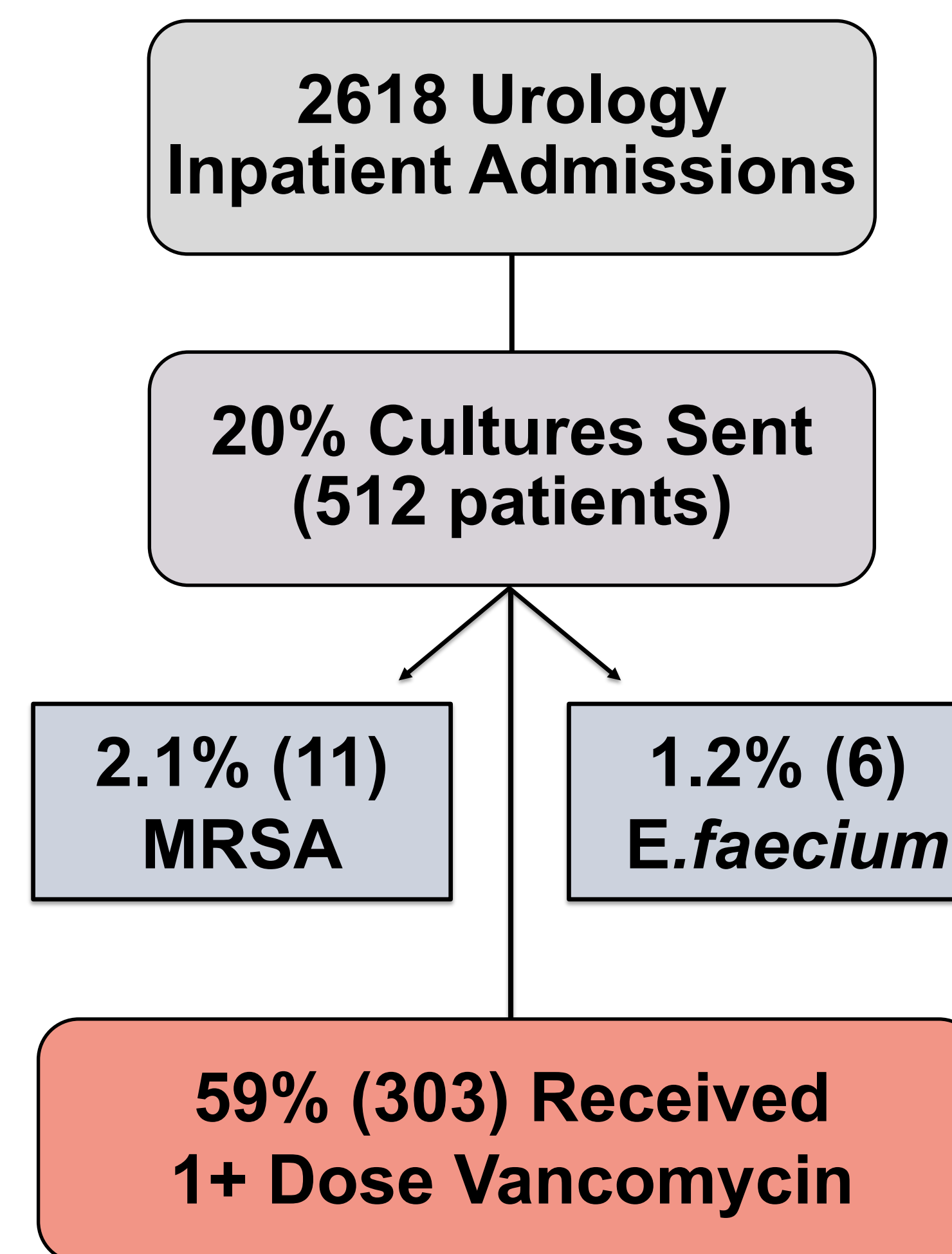
## PURPOSE

This study examines whether the rates of MRSA and *E. faecium* infection justify the routine empiric use of vancomycin in Urology inpatients.

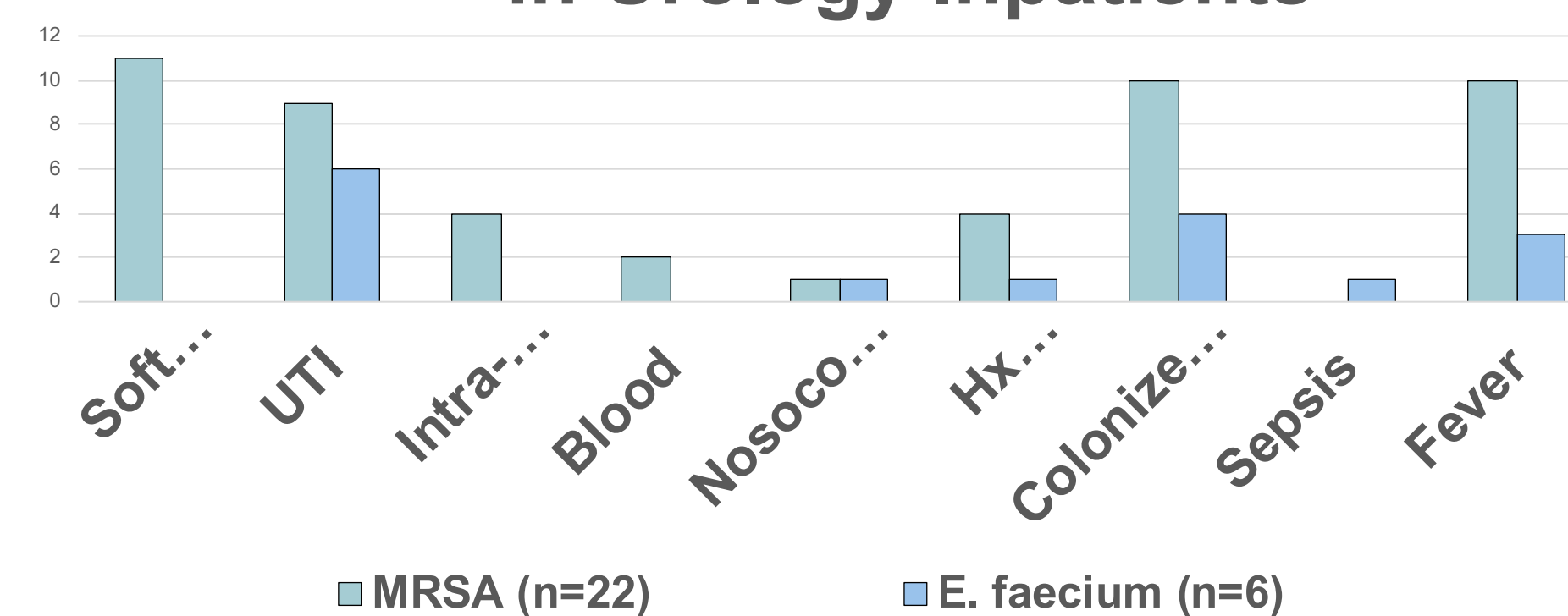
## METHODS

- Retrospectively identified 2618 inpatient admissions (all-cause) to the Urology service from 7/1/2014 – 7/1/2018
- Prior cultures identified using Current Procedural Terminology codes
- Collected antibiotic order data using inpatient pharmacy records and microbiology data was obtained from the Epicenter Microbiology Data Management System
- Chart review conducted on all MRSA or *E. faecium* culture positive patients to assess for potential risk factors including: prior cultures, chronic colonization, recent procedural history and other clinical factors
- Nosocomial infections were defined as infections occurring >48hrs after admission per WHO criteria

**Figure 1: Vancomycin Usage and Culture Results in Urology Inpatients**



**Figure 2: Clinical Factors of MRSA vs. *E. faecium* Infections in Urology Inpatients**



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## RESULTS

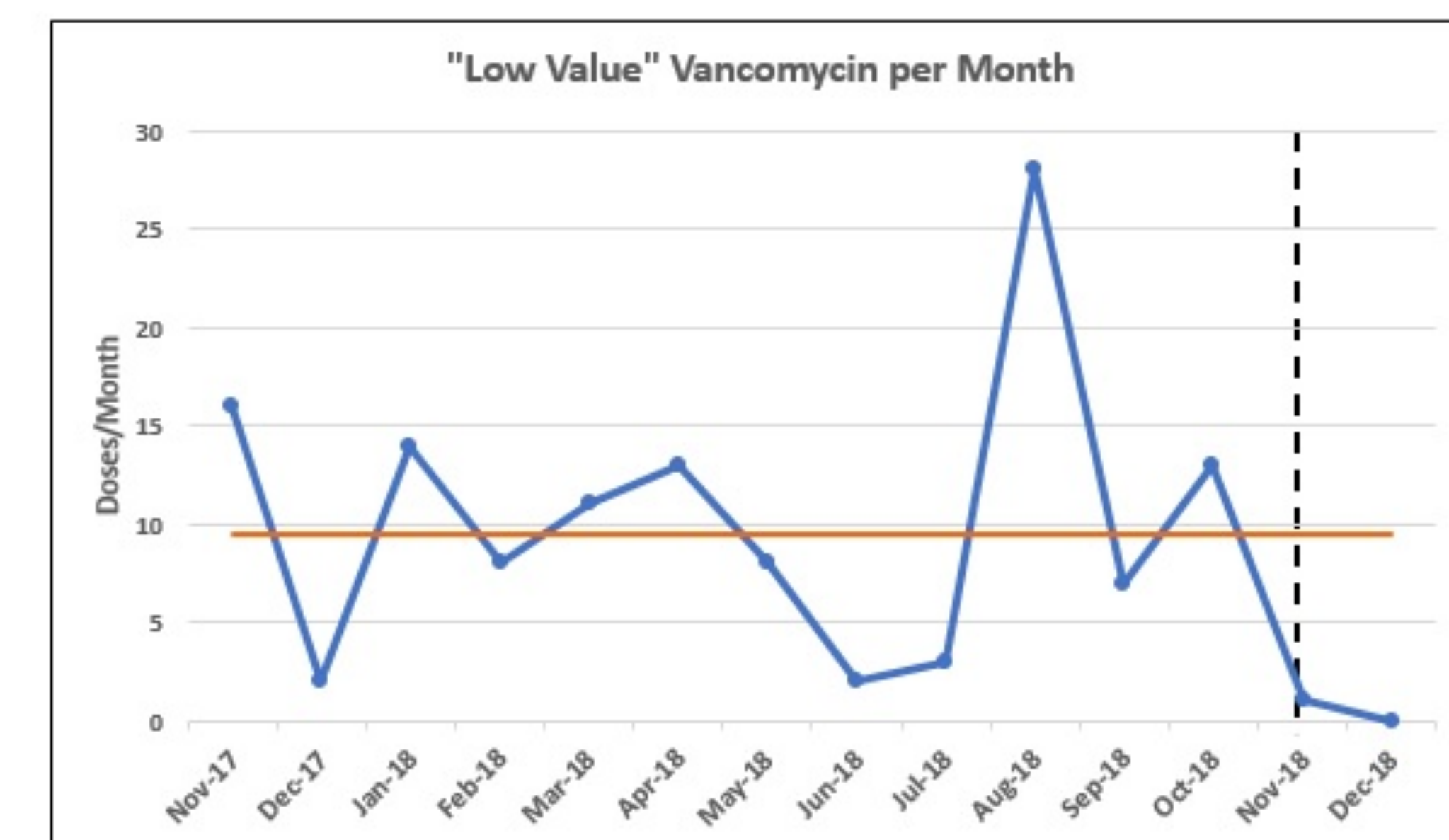
- Of 2618 Urology inpatient admissions, there were 11 (0.4%) MRSA and 6 (0.2%) *E. faecium* positive cultures (Figure 1)
- 512 patients (20%) had any culture (blood, urine, etc) sent and of these 2.1% grew MRSA and 1.2% grew *E. faecium*
- 59% of patients with suspected infection (cultures sent) received 1+ doses of non-perioperative Vancomycin
- Of patients with MRSA+ soft tissue infections, 64% were surgical site infections but only 50% of patients with non-soft tissue MRSA infections had a history of prior surgery within 30d
- The majority of UTIs were in patients with external catheters or urinary diversion but there were no other clear defining clinical characteristics of MRSA or *E. faecium* infection (Figure 2)

## CONCLUSIONS

- The empiric use of Vancomycin in this population does not appear to be justified
- The majority (59%) of Urology inpatients suspected of infection received Vancomycin despite very low rates of MRSA (2.1%) and *E. faecium* (1.2%)
- Limitations include: (1) patients without cultures (or with outside cultures) were not evaluated, (2) use of CPT codes may under-capture the number of cultures sent

## NEXT STEPS/CURRENT WORK

Nov 2018: "De-Implementation" of empiric Vancomycin use in clinically stable urology inpatients



	MRSA+ Soft-Tissue	MRSA+ Non-Soft Tissue	<i>E. faecium</i> +
<b>Sensitivity</b>	<b>1.0</b>	<b>0.73</b>	<b>0.83</b>
<b>Pos. Predictive Value</b>	<b>0.04</b>	<b>0.03</b>	<b>0.02</b>