MRSA Nasal PCR - FAQ SHEET

1. **MRSA nasal PCRs can be used to safely discontinue IV vancomycin for which bacterial infection(s)?**
    a. Pneumonia

2. **Can we still use the test to reliably de-escalate therapy in a patient who is COVID (+)?**
    a. Yes, continue with current pneumonia recommendations and de-escalate if MRSA nsasal PCR result is negative

Study	Design	Results
Punjabi CD, et al. (2020)	Retrospective Cohort N=472	**PCR result**: 12/122 test were positive • Of those 2 patients had a corresponding positive respiratory culture for MRSA **NPV 100%**

3. **Can we still recommend d/c IV vancomycin if the patient has sepsis?**
    a. Sepsis requires a source – if pneumonia has been definitively identified as the source of patient's sepsis and the MRSA nasal PCR is negative, then we can assume the pathogen causing the sepsis is most likely not MRSA

4. **What if there are multiple possible infections?**
    a. The MRSA nasal PCR is to help guide de-escalation for empiric pneumonia treatment.
    b. Evaluate the situation critically. Review the vancomycin use criteria, evaluate the likelihood for MRSA in each infection, and determine if it is still a useful tool to at least rule out MRSA pneumonia

5. **What if the respiratory cultures have not resulted yet?**
    a. Still make the recommendation – no need to wait
    b. The NPV ranges from ~95-99%

Study	Design	Results		
Parente DM, et al. (2018)	Meta-analysis N = 5163	**All – PNA** Sensitivity 70.9% Specificity 90.3% PPV 44.8% NPV 96.5%	**CAP/HCAP** Sensitivity 85.0% Specificity 92.1% PPV 56.8% NPV 98.1%	**VAP** Sensitivity 40.3% Specificity 93.7% PPV 35.7% NPV 94.8%
		Conclusion: **High specificity and NPV for ruling out MRSA pneumonia→ Especially CAP/HCAP**		

6. **What if the patient still looks sick? (Elevated WBC, fever, ventilated, etc.)?**
    a. Still make the recommendation.
    b. As mentioned in the two pharmacist-driven studies below – there was no compromise in clinical outcomes.
    c. Be *cautious* if this is not a definitive PNA case

Study	Design	Results
Dunaway S, et al. (2018)	Retrospective N=196	Duration of vancomycin therapy 49 vs 18 h ($p < 0.001$) No change: All-cause mortality, LOS, 30-day readmission Conclusion: Shorter duration of empiric vancomycin therapy by ~31 h per patient **without increasing adverse clinical outcomes**
Willis C, et al. (2017)	Retrospective N=300	Duration of Vanc: Median 2.1-day reduction (2.1 vs 4.2 days, $p < 0.0001$) Conclusion: Pharmacist-driven protocol using a MRSA PCR nares assay to guide vancomycin de-escalation → reduction in vancomycin utilization **without compromising clinical outcomes**

7. **What if the patient decompensates after discontinuing therapy? Would you restart it?**
    a. Unlikely, unless patient has strong risk factors for MRSA, if it is a new pneumonia that developed several days after original PCR result, or there was another source of concern. Please discuss with antimicrobial stewardship pharmacist as needed.

8. **When not to use MRSA PCR results?**
    a. Empyema
    b. Prior mupirocin decolonization (this admission)
    c. Anti-MRSA antibiotic use for >48 hours

References

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