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### Comparative Detection Of Airway MRSA In Patients With Community-Acquired Pneumonia (CAP)

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# Comparative Detection of Airway MRSA in Patients with Community-Acquired Pneumonia (CAP)

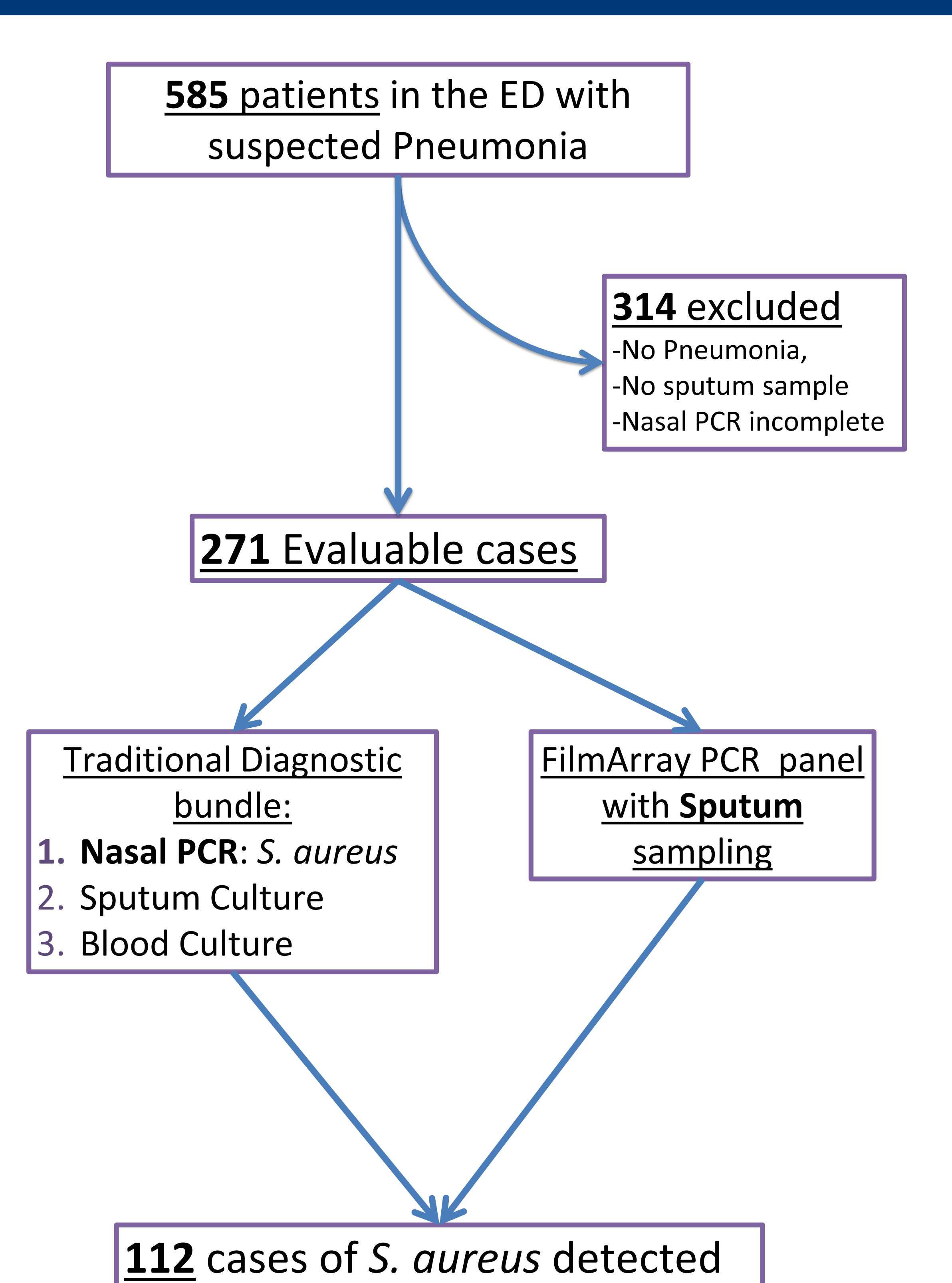
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## Introduction

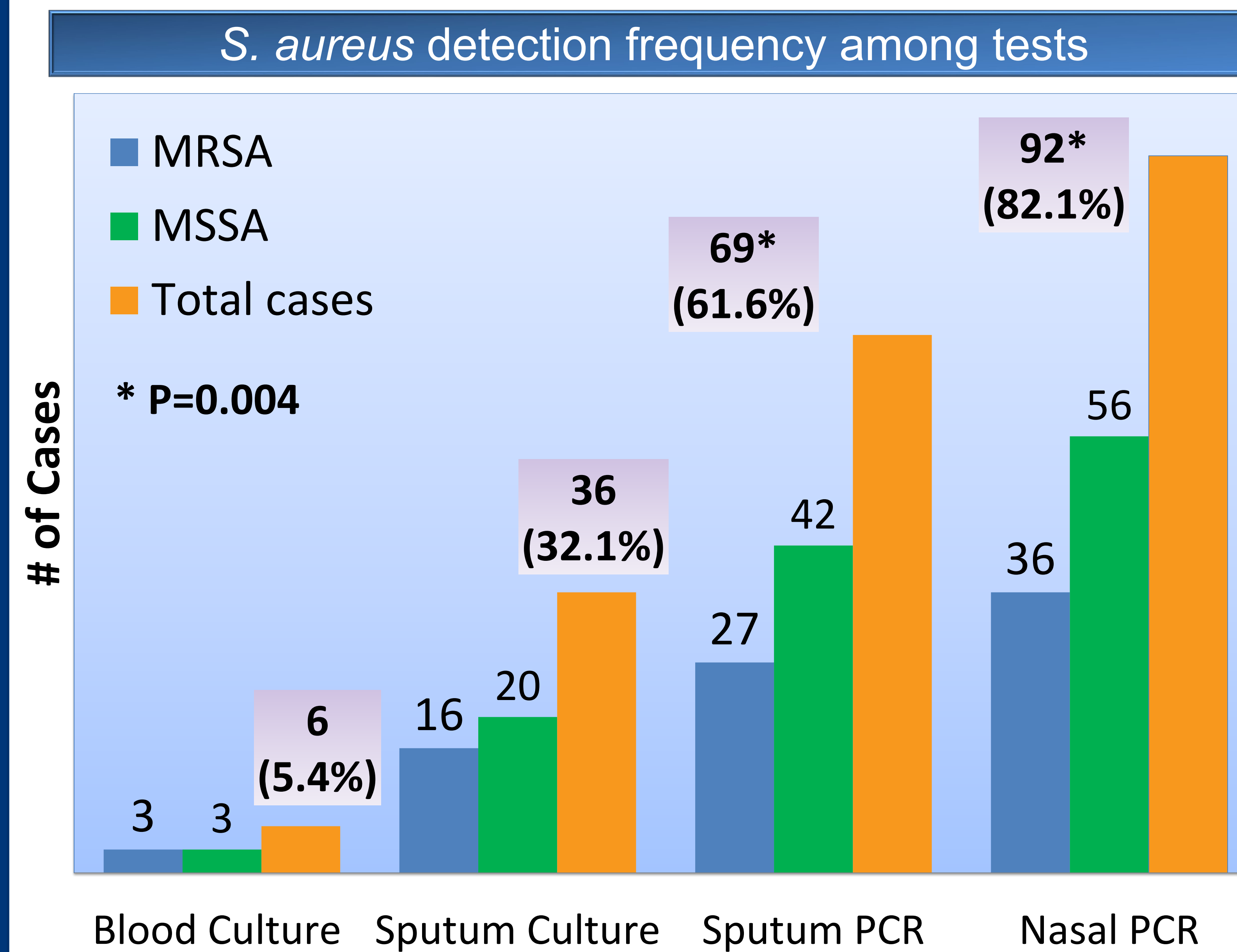
Empiric Vancomycin is ordered in patients with severe CAP to ensure activity vs Methicillin-resistant *Staphylococcus aureus* (MRSA.) Nasal Swab PCR is currently the test of choice to detect airway colonization of *Staphylococcus aureus* (*S. aureus*) (2,3). The absence of MRSA justifies discontinuing empiric therapy with Vancomycin (1,4). Furthermore, Nasal PCR directed management is associated with decreased antibiotic use, less complications and mortality (1,5). The FilmArray PCR Pneumonia panel sampled by the sputum has 33 targets that includes MRSA.

This study compares detection of *S. aureus* via either Nasal swab PCR or Sputum FilmArray Pneumonia panel in patients admitted with CAP.

## Methods

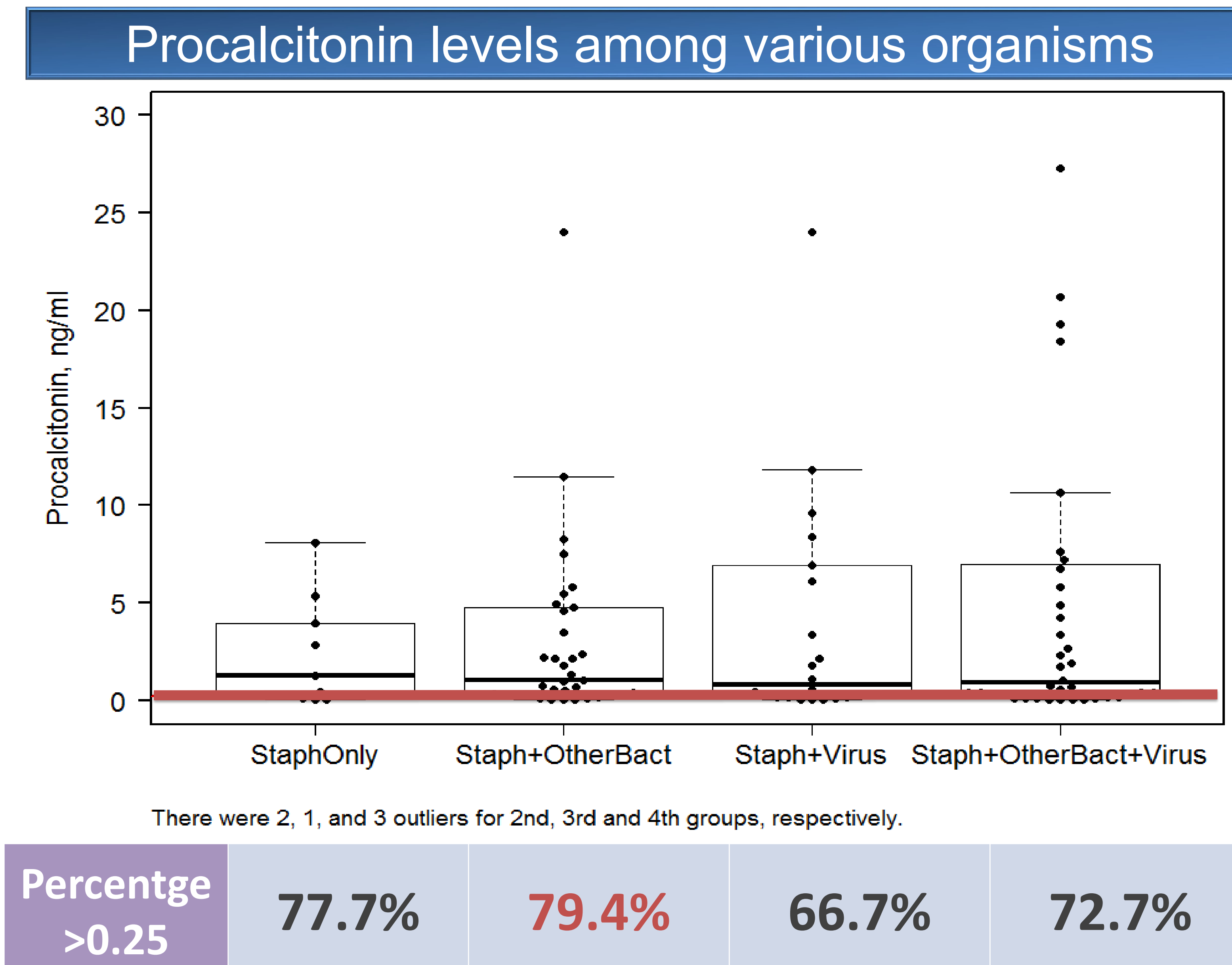


## Results



**Performance characteristic comparisons for MRSA**

Test of interest	Gold Standard	Sensitivity	Specificity	PPV	NPV
Sputum PCR	Nasal Swab PCR	63.9%	98.3%	85.2%	94.7%
Nasal Swab PCR	Sputum PCR	85.2%	94.7%	63.9%	98.3%



## *S. Aureus* species concordance

Test results	No. of Cases
Nasal= MSSA Sputum=MRSA	1
Nasal= MRSA Sputum=MSSA	3
MRSA/MSSA match	52
<b>Total:</b>	<b>56</b>
<b>Concordance rate</b>	<b>92.3%</b>

## Discussion

- Nasal swab PCR was more sensitive than Sputum PCR in the detection of *S. aureus*. Additionally, NPV was highest with Nasal swab PCR.
- NPV of Sputum PCR is relatively high due to the overall low incidence rate of MRSA pneumonia similar to previous studies. (3,4,5) .
- *S. aureus* colonizes the nares due to lower temperatures (2).
- Procalcitonin levels can help differentiate colonization from invasion
- There was good species concordance between Nasal Swab and Sputum PCR.
- Although both Nasal and Sputum PCR had high NPV, it may be necessary to include Nasal PCR for definitive exclusion of MRSA.

## Conclusion

- ❖ Nasal PCR for *S. aureus* is more sensitive than Sputum PCR for the detection of both MSSA and MRSA.
- ❖ To exclude MRSA in a critically ill patient with CAP, it maybe necessary to add a nasal PCR test to the new sputum FilmArray pneumonia panel.

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