

Evaluation of a Novel, Citrus Silver Nasal Cleaning Swab on *Staphylococcus aureus* Microbial Activity in Porcine Nares

Summary:

An *in-vivo* prospective cohort study utilizing 6 pigs was performed to evaluate the efficacy of a novel, citrus silver nasal cleansing swab on Methicillin-Sensitive *Staphylococcus aureus* (MSSA). *Staphylococcus aureus* is one of the most common pathogens for many healthcare associated infections including surgical site infections and central-line associated bloodstream infections. The study found that the citrus silver nasal cleansing swab significantly reduced MSSA within a few minutes of application and showed a sustained reduction of MSSA for 12 hours.

Methods:

- Two groups of pigs (3 control and 3 experimental) were utilized for the study.
- 10^8 to 10^9 logs of *Staphylococcus aureus* (SA) were inoculated into the pigs' nares and allowed to incubate for 15 minutes
- After the allotted incubation time had elapsed, the treatment group received an application of the citrus silver nasal cleansing swab, which was applied for 15 seconds into each naris.
- The pigs were then swabbed and tested at the same time periods which included 0 minutes, 1 hour, and 12 hours
- The swabs were plated and grown for 72 hours to determine the amount of organism recovered from the pigs' nares.
- The controls were also grown at 0 minutes, 1 hour, and 12 hours to compare the percent reduction that naturally occurred due to the natural organism die off.

Results:

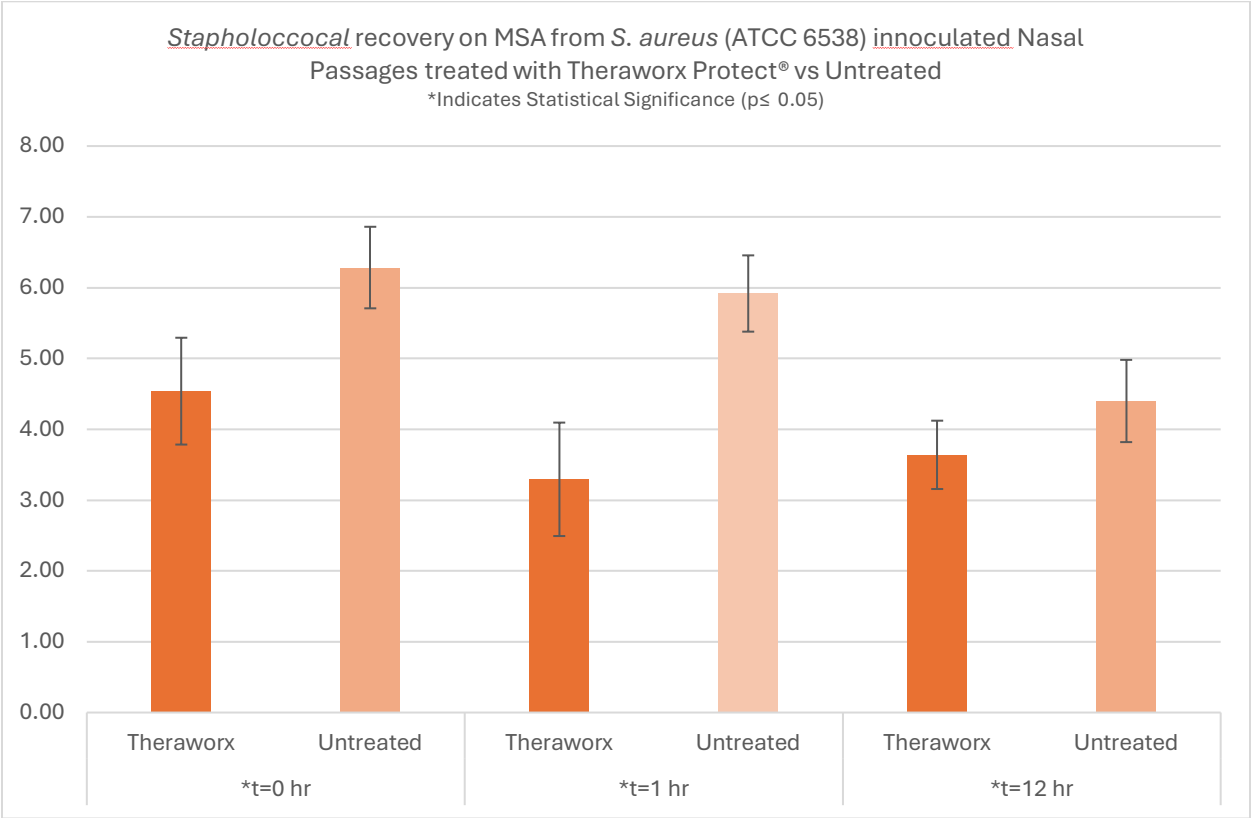
- A statistically significant 97.74% reduction of MSSA was seen at the 0 minute mark
- There was a statistically significant 99.8% reduction of MSSA seen at 1 hour mark
- A statistically significant reduction of 99.78% was sustained at the 12 hour mark

Limitations:

- This was a small study, with only 3 pigs per group
- Large amounts of *Staphylococcus aureus* were inoculated, human colonization is typically lower
- Only tested at a 30 second application (15 seconds per nare)
- The study only looked at Methicillin-Sensitive *Staphylococcus aureus* (MSSA); it is unknown if Methicillin-Resistant *Staphylococcus aureus* (MRSA) outcomes would vary.

Conclusions:

The study found that the novel citrus silver nasal cleansing swab significantly reduced MSSA within minutes and showed a statistically significant reduction was sustained for 12 hours.



Reduction of Bacteria over 24 Hours		
Timepoint	Treatment	Percent Reduction
t=0 hr	Theraworx Protect	97.74%
	Untreated	0.00%
t=1 hr	Theraworx Protect	99.80%
	Untreated	48.59%
t=12 hr	Theraworx Protect	99.78%
	Untreated	97.69%

*This study summary was authored by Caitlin Crews-Stowe, PhD, MPH, CPH, CIC, CPHQ, VA-BC and funded by Avadim Health.