

Evaluating the Antimicrobial Efficacy of Medline 62% Alcohol Nasal Swabs in Reducing *Staphylococcus Aureus*



Clinical Evidence Summary

Introduction

Antibiotics are commonly used to reduce nasal colonization of *Staphylococcus aureus* (*S. aureus*).^{1,2} *S. aureus* is an organism that poses a high risk for potentially dangerous bacterial infections for hospitalized and post-operative patients. The use of antibiotics in patients before admission may be inappropriate for consistent prevention of *S. aureus* infection within a healthcare setting and may promote antibiotic resistance.^{2,3} Safe and effective non-antibiotic alternatives, such as antiseptic nasal swabs, can reduce nasal colonization of *S. aureus* and other harmful microorganisms.⁴

Medline Alcohol Nasal Swabs* are pre-saturated with 62% ethyl alcohol (EtOH) to help provide effective nasal decolonization benefits with minimal nasal irritation side effects. Medline Alcohol Nasal Swabs can be used for nasal decolonization in patient, visitor, and healthcare worker populations to reduce the risk of infection.

Medline Industries, LP conducted a randomized clinical study through a third-party testing facility to evaluate the antimicrobial efficacy of Medline Alcohol Nasal Swab in reducing *S. aureus* colonies and total bacteria numbers in the nostrils.

Study methods

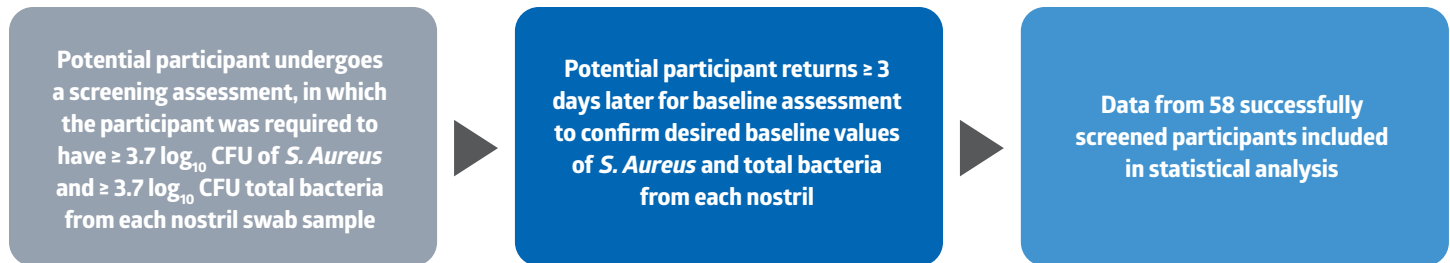
In a study population of 58 healthy adults (≥ 18 years), study investigators evaluated the antimicrobial efficacy of Medline Alcohol Nasal Swab in comparison to a negative control of a nasal swab saturated with 0.9% Sodium Chloride Irrigation, USP.

Prior to testing, participants underwent a screening evaluation. On the first day of screening, the participant was asked to blow their nose to ensure the nasal passages were clear, after which a technician swabbed one nostril. The swab was transferred to a sterile test tube. The contents of the swab were then plated to evaluate the number of *S. aureus* colonies, and the process was repeated for the other nostril. Participants were required to have a baseline $\geq 3.7 \log_{10}$ CFU (colony-forming unit) of *S. aureus* and $\geq 3.7 \log_{10}$ CFU of total bacteria present to participate in the study.

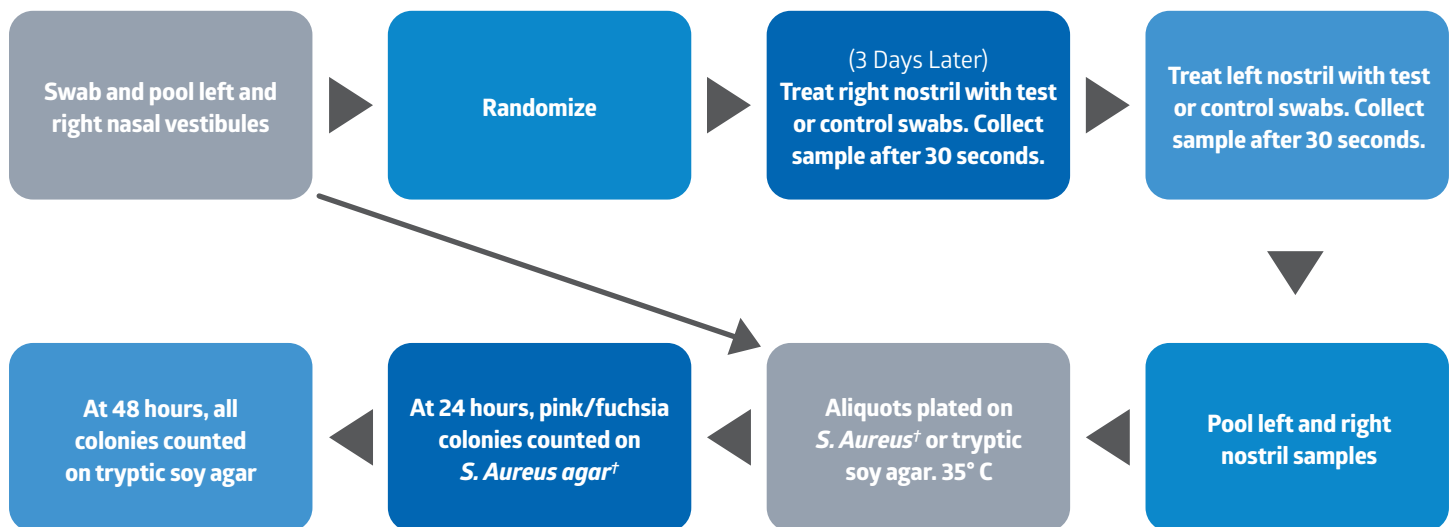
Study testing began three to five days after the desired baseline CFU was confirmed. The participant was asked to again blow their nose and avoid touching their nose during the study procedures. Both nostrils of the participant were randomly treated with one treatment of either Medline Alcohol Nasal Swab or the negative control. At 30 seconds post-treatment, the nostrils were swabbed, and the swab was transferred to a sterile test tube and plated using HardyCHROM™ *S. aureus* agar. The number of *S. aureus* colonies was evaluated for the Alcohol Nasal Swab and the negative control treated nostrils. Reductions in bacterial counts were calculated for each participant by subtracting the CFUs after treatment from the baseline CFUs.

Study design

Participant screening



Study intervention



Study results

The results of the study demonstrated that after a single application in the nostrils, Medline Alcohol Nasal Swab reduced *S. aureus* colonies from baseline by 88.8% after 30 seconds and reduced total bacteria CFUs from baseline by 91.9% after 30 seconds.

Comparatively, at 30 seconds post-application the negative control reduced *S. aureus* CFUs by only 39.7% and reduced total bacteria CFUs by 32.4%.

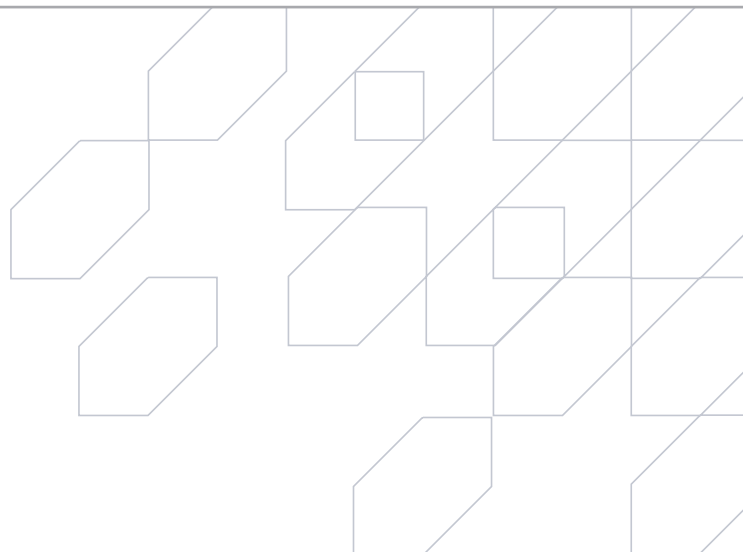


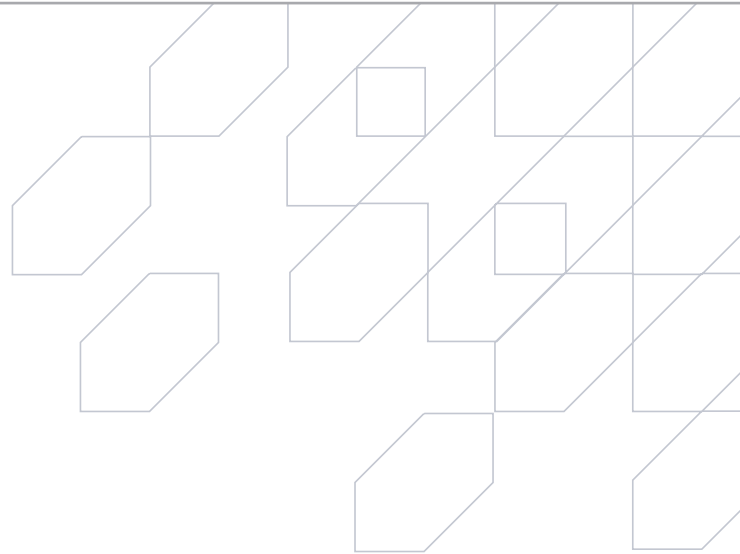
Table 1. Medline Alcohol Nasal Swab vs. Negative Control *S. Aureus* and Total Bacteria CFU Reductions

Medline Alcohol Nasal Swab (n=38 participants)	
<i>S. aureus</i> CFUs	
Baseline <i>S. aureus</i> CFUs	5.03 log ₁₀ = 107,152
Post-Treatment <i>S. aureus</i> CFUs	4.08 log ₁₀ = 12,023
Post-Treatment % Reduction in CFUs From Baseline	88.8%
Total Bacteria	
Baseline CFUs	5.64 log ₁₀ = 436,516
Post-Treatment CFUs	4.55 log ₁₀ = 35,481
Post-Treatment % Reduction in CFUs From Baseline	91.9%
Negative Control (0.9% Sodium Chloride) (n= 20 participants)	
Control <i>S. Aureus</i> CFUs	
Control Baseline <i>S. aureus</i> CFUs	5.33 log ₁₀ = 213,796
Control Post-treatment <i>S. aureus</i> CFUs	5.11 log ₁₀ = 128,825
Control Post-treatment % Reduction in CFUs from Baseline	39.7%
Control Total Bacteria	
Control Baseline CFUs	5.77 log ₁₀ = 588,844
Control Post-treatment CFUs	5.60 log ₁₀ = 398,107
Control Post-treatment % Reduction in CFUs from Baseline	32.4%

Conclusions

Antiseptic alcohol-based nasal swabs are an alternative to antibiotics in decolonizing the nostrils to help reduce the presence of *S. aureus* and other harmful microorganisms. Medline Alcohol Nasal Swabs, pre-saturated with EtOH, are designed to provide effective nasal decolonization.

Antimicrobial efficacy testing of Medline Alcohol Nasal Swabs in comparison to a negative control showed that Medline Alcohol Nasal Swab treatment reduced *S. aureus* CFUs from baseline by 88.8%, compared to a 39.7% reduction in nostrils treated with the negative control swab. Overall, Medline Alcohol Nasal Swab reduced 49.1% more *S. aureus* CFUs than the negative control results. The study results demonstrate that Medline Alcohol Nasal Swabs can effectively reduce *S. aureus* colonies and other harmful microorganisms in the human nostrils after only one application.



References:

1. Antonov, Nina K., et al. "High Prevalence of Mupirocin Resistance in Staphylococcus Aureus Isolates from a Pediatric Population." *Antimicrobial Agents and Chemotherapy*, vol. 59, no. 6, 30 Mar. 2015, pp. 3350–3356, aac.asm.org/content/aac/59/6/3350.full.pdf.
2. Poovelikunnel, T., et al. "Mupirocin Resistance: Clinical Implications and Potential Alternatives for the Eradication of MRSA." *Journal of Antimicrobial Chemotherapy*, vol. 70, no. 10, 3 July 2015, pp. 2681–2692, [10.1093/jac/dkv169](https://doi.org/10.1093/jac/dkv169).
3. Septimus, Edward J., and Marin L. Schweizer. "Decolonization in Prevention of Health Care-Associated Infections." *Clinical Microbiology Reviews*, vol. 29, no. 2, 27 Jan. 2016, pp. 201–222, cmr.asm.org/content/cmr/29/2/201.full.pdf.
4. Steed, Lisa L., et al. "Reduction of Nasal Staphylococcus Aureus Carriage in Health Care Professionals by Treatment with a Nonantibiotic, Alcohol-Based Nasal Antiseptic." *American Journal of Infection Control*, vol. 42, no. 8, Aug. 2014, pp. 841–846, [www.ajicjournal.org/article/S0196-6553\(14\)00651-8/pdf](http://www.ajicjournal.org/article/S0196-6553(14)00651-8/pdf).



**We make
healthcare
run better™**

Medline Industries, LP
Three Lakes Drive, Northfield, IL 60093
Medline United States | 1-800-MEDLINE (633-5463)
medline.com | info@medline.com

Medline Canada
1-800-268-2848 | medline.ca | canada@medline.com
Medline México
01-800-831-0898 | medlinemexico.com | mexico@medline.com

Follow us    

*Medline Alcohol Nasal Swab does not contain Glyceryl Laurate.

†*S. Aureus* agar = HardyCHROM™ *Staph Aureus* agar.