

# Evaluating the effectiveness of a modified screen-and-treat pre-operative decolonization protocol driven by patient-reported *Staphylococcus aureus* history

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## Background

Our large-volume orthopedic surgical hospital employs a modified screen-and-treat pre-operative decolonization protocol driven by patient-reported *Staphylococcus aureus* history (SAHx). Patients who report SAHx are prescribed pre-operative decolonization, and four-site *Staphylococcus aureus* (SA) surveillance cultures as time allows. We evaluated the effectiveness of patient-reported SAHx in identifying patients with positive SA cultures who may be at increased risk for SA surgical site infection (SSI).

## Objectives

- Describe a modified screen-and-treat preoperative decolonization protocol at an academic medical center focused on musculoskeletal health and rheumatology.
- Assess the effectiveness of our decolonization protocol by evaluating patient-reported SAHx, surveillance culture results, and whether a correlation exists between the two.
- Discuss how these results are driving the future state of our decolonization protocol.

## Disclosures

- Alexandra P. Grizas – nothing to disclose
- Elizabeth V. Robilotti – Relais Media

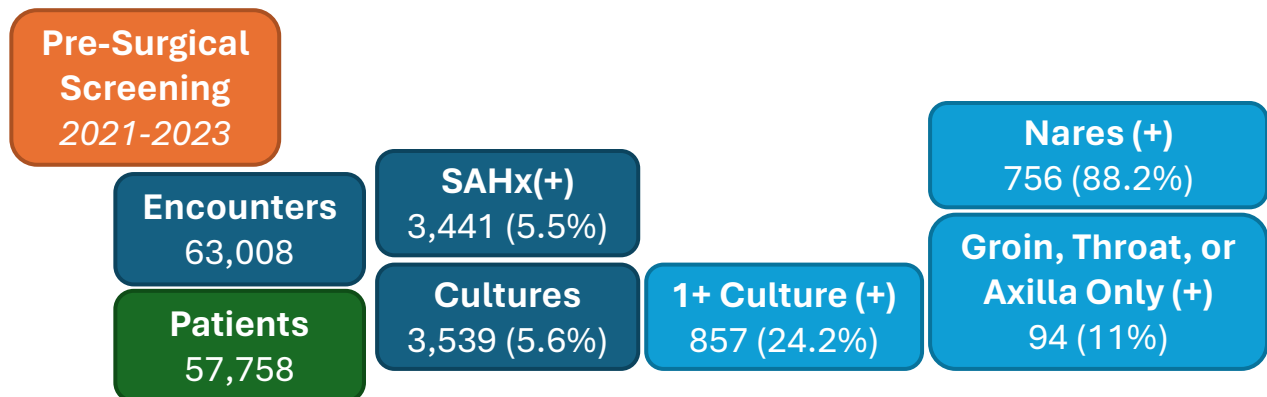
## Study Design

We conducted a retrospective analysis of patient-reported SAHx and surveillance cultures among 66,947 pre-surgical screening (PSS) encounters from 1/2021 - 11/2023 at our surgical hospital. The first PSS encounter per calendar year per patient with surgery completed within 30 days of PSS was included. Odds ratio (OR) (p-value <0.05) was calculated comparing cultures among SAHx(+) patients versus SAHx(-).

## Results

63,008 PSS encounters among 57,758 unique patients were included (Figure 1). 3,441 (5.5%) reported SAHx(+) with the rate increasing over the study years 2021-2023 (4.0%, 5.3%, 7.1% respectively). Select SAHx(-) patients were also cultured per physician preference, resulting in 3,539 encounters with four-site (nares, axilla, throat, groin) cultures. 24.2% of all cultured patients had 1+ positive site(s), with nares being the most frequently positive (88.2%). 79.6% were colonized at only 1 site, with nares being the most frequent, followed by groin (5.4%), throat (3.7%), and axilla (1.9%). The odds of positivity among SAHx(+) was not significantly different than SAHx(-) (OR= 1.23; p=0.056; 95% CI=0.995-1.517).

## Figure 1



## Conclusion

Targeting surveillance among patients with a self-reported SAHx does not effectively capture all patients at highest risk for SA colonization who may therefore benefit from pre-operative decolonization. Further nares only screening would miss 11% of patients colonized elsewhere. Given how time- and resource-intensive SA surveillance with multi-site culture is, and how few patients report SAHx, point-of-care universal decolonization strategies may have more impact on SA SSI risk reduction at facilities like ours.

## References

1. Siegel JD *et al.* Healthcare Infection Control Practices Advisory Committee. Management of multidrug-resistant organisms in health care settings, 2006. *Am J Infect Control.* 2007 Dec;35(10 Suppl 2):S165-93.
2. Harbarth S *et al.* Evaluating the Probability of Previously Unknown Carriage of MRSA at Hospital Admission. *Am J Med.* 2006 Mar;119(3):275.e15-23.
3. Kessels RPC. Patients' memory for medical information. *J R Soc Med.* 2003;96:216-222.
4. Stambough JB *et al.* Decreased Hospital Costs and Surgical Site Infection Incidence With a Universal Decolonization Protocol in Primary Total Joint Arthroplasty. *J Arthroplasty.* 2017 Mar;32(3):728-734.e1.
5. Calderwood MS *et al.* Strategies to prevent surgical site infections in acute-care hospitals: 2022 Update. *ICHE.* 2023 May;44(5):695-720.