

Introduction

There is a need for characterizing the prevalence of *Staphylococcus aureus* (SA) in the neurosurgical population.

- SA is the most common organism responsible for surgical-site infections (SSIs) after neurosurgery.
- SSIs impart substantial morbidity and mortality, and are national focus of quality improvement.
- Preoperative SA colonization increases risk of postoperative SA infection.

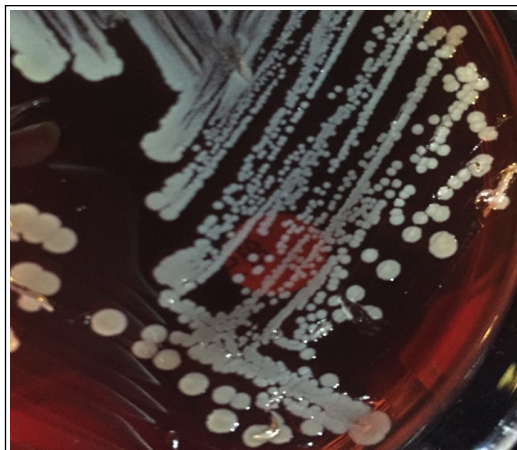


Demonstrated SA sample collection.

Methods

Swabs of the nares and surgical site are obtained preoperatively and postoperatively (POD 14 & 90)

- **Recruitment:** Subjects from ongoing, randomized controlled trial, "Topical Vancomycin for Neurosurgery Wound Prophylaxis" (NCT02284126), which will determine whether topical vancomycin applied at wound closure reduces the incidence of SSIs at postoperative day (POD) 30. Trial excludes instrumented spine procedures due to a lack of clinical equipoise in this patient population.
- **Samples Screened for SA:** SA-selective mannitol salt agar following incubation in tryptic soy broth at 37°C for 1 day.

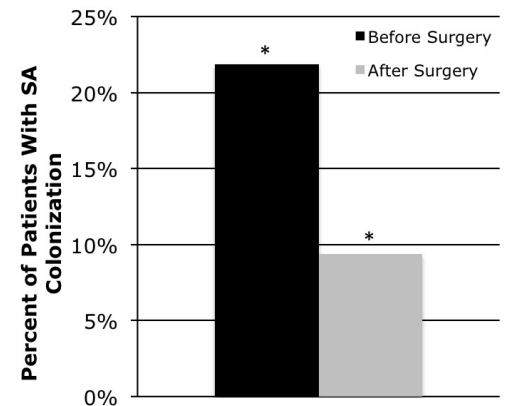


Typical growth of SA on agar.

Results

Study Sample

- Of the 259 patients enrolled in the trial as of 7/30/2015, 56 (21.62%) were colonized with SA in either the nares or at the surgical site. Of those, 43.64% remained colonized following surgery.

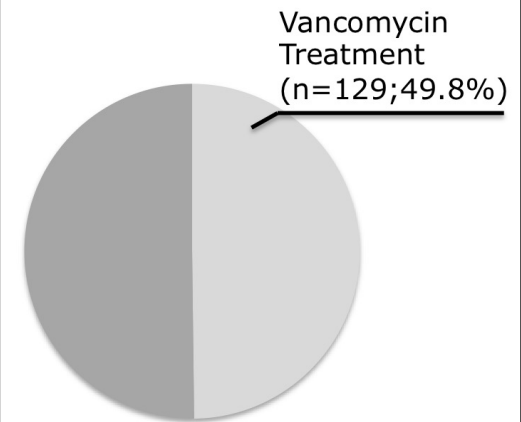


*Pre-operative SA colonization is significantly associated with post-operative colonization ($P < 0.0001$)

Association Analyses

- No SA isolates were methicillin-resistant.
- Preoperative colonization associated with postoperative colonization ($P < 0.001$).
- Colonization was not significantly associated with application of topical vancomycin, ethnicity, body mass index (BMI), inpatient status, or length of stay.

Study Arm Distribution



Eight subjects were newly colonized by POD30

- **Three Treatment Patients:** 1 skin only, 1 nares only, 1 skin & nares
- **Five Control Patients:** 3 skin only, 1 nares only, 1 skin & nares

Conclusion

These preliminary data report the prevalence of SA colonization and antibiotic resistance in the neurosurgical population. Our results suggest that SA colonization among this subgroup of neurosurgical patients at academic centers is low, however patients are likely to remain colonized (and thus at risk of infection) postoperatively. As enrollment continues, we will better characterize risk factors for SA colonization, SSIs, and potentially improve perioperative antibiotic management.