

## **Abstract**

**Background:** Methicillin-resistant *Staphylococcus aureus* (MRSA) has traditionally been identified as a causative organism for skin and soft tissue infections following health-care exposure. Beginning in the early 1990s a genetically and phenotypically distinct strain of resistant *S. aureus*, community-acquired MRSA (CA-MRSA), has emerged. This has affected treatment strategies for patients presenting with acute skin and soft tissue infections without traditional MRSA risk factors. Clinicians continue to struggle with identification of the patient population requiring therapy directed against MRSA and the true impact of this infection. Data are limited on the prevalence of this pathogen among patients presenting to the emergency department (ED) with skin and soft tissue infections and whether or not new strategies targeting CA-MRSA are negatively affecting patient care.

**Objective:** To determine the predictive value of MRSA nasal carriage for skin and soft tissue infections caused by MRSA and to establish if MRSA nasal carriage better identifies patients with subsequent MRSA infection than clinical risk criteria alone. Furthermore, we will determine whether empiric antibiotic coverage for MRSA in skin and soft tissue infection treatment regimens alters patient acceptance of the antibiotic regimen.

**Methods:** Patients presenting with skin and soft tissue infection to the ED over a one-year period will be enrolled into a prospective cohort study. Following informed consent, data on patient demographics, type and location of infection, and past medical and social history will be obtained through patient interview. A swab of the anterior nares will be obtained for polymerase chain reaction (PCR) testing. Management of the infection including antibiotic treatment decisions and culturing when appropriate will be performed via routine ED practices. All enrolled subjects will be contacted via telephone 7-10 days after ED presentation to obtain data regarding the treatment regimen to assess medication adherence, adverse events, and subjective response to therapy. For the primary analysis population, concordance between nasal colonization and infection-site culture will be determined. Additionally, results from nasal swab testing will be compared to a clinical tool for predicting patients at risk for MRSA infection to determine whether additional candidates for anti-MRSA antibiotic therapy are identified through rapid screening for MRSA colonization. Descriptive statistics and chi-square analysis will be used to report data from the 7-10 day follow-up telephone call.