

**TITLE:**

Molecular epidemiology and phylodynamic and phylogeographic analysis of Community-associated Methicillin-resistant Staphylococcus aureus transmission: An Emergency Department Population Sampling Strategy

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**RESEARCH PROJECT DESCRIPTION**

The Emergency Department has become the entry way for large populations of patients into the health care system, a strategy of sampling MRSA isolates in Emergency Department populations and merging this information with patient-level data may present a window to hypothesize and investigate community acquired CA-MRSA transmission within the community and its impact on hospital-acquired infections. We propose to integrate Staphylococcus protein A typing and full genome next generation sequencing with phylodynamic analysis and patient-level data to analyze the temporal and spatiogeographic transmission of CA-MRSA.

This study will involve the screening and enrollment of emergency department patients with suspected skin and soft tissue infections, survey administration and subsequent sequencing of their samples. Students will be involved in all aspects of the research process including subject enrollment, sample collection, survey administration and data entry. Upon collection of data, students will be able to conduct basic statistics to analyze acquired data.