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The overall goal of this proposal is to define the importance of *S. aureus* strain ST398 as an emerging pathogen in our community and to determine the basis for its virulence. The aims are:

a. To determine the reservoirs and modes of transmission of ST398 in Northern Manhattan

- A cluster-based study design will be used to define the basis for ST398 transmission in Northern Manhattan. Subjects either colonized or infected with ST398 will be identified, interviewed, cultured. All contacts and their secondary contacts will be identified and asked to participate. Factors associated with acquisition and transmission of this strain will be determined. Efforts will be made to enroll all network members including recent contacts in the Dominican Republic.
- In light of the past history of an animal origin for ST398, potential animal reservoirs in the community including pet stores, veterinarians, butchers and pet groomers will also be studied.
- Spatial mapping of the strain locations will also be used to identify potential patterns of reservoirs for transmission.

b. Genetic alterations potentially responsible for the adaptation of strain ST398 to person-to-person transmission will be examined.

- Total genome sequencing will be used to compare the Northern Manhattan ST398 isolates with those isolates that have been directly associated with animal related infections. The aim is to identify regions of the ST398 genome that are unique and might explain the increased transmissibility and virulence of these clones.
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