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"Longitudinal study of multi-site [cervical, rectal, pharyngeal] *Chlamydia trachomatis* infections in young, high-risk women."

Chlamydia trachomatis (CT) is the most common bacterial sexually transmitted infection, and chronic or repeat infections can result in severe reproductive morbidities. CT is a significant public health problem because infection rates continue to rise and there is no vaccine. The endocervix is the primary site of infection in women, but recent reports suggest additional extra-genital reservoirs of infection, specifically the pharynx and rectum. In this study, I plan to evaluate (i) rates of single, dual, and triple infections in young, high risk women in New Orleans, (ii) if organisms are genetically similar at each site, and (iii) if oral and pharyngeal infections can spontaneously clear without antibiotic intervention, similar to that observed in genital infection. CT strains have been historically classified into serovars by differences in the major outer membrane protein (MOMP), which varies greatly between strains. Genetic similarities can be analyzed both within and between different serovars. High-risk women who have tested positive for CT infection at the LSU CrescentCare Sexual Health Clinic are tested for several STIs using nucleic acid amplification tests (NAATs). Endocervical, pharyngeal, and rectal swabs are collected, and genomic DNA is isolated and quantified. The *ompA* gene encoding the major outer membrane protein (MOMP) is amplified by polymerase chain reaction (PCR). Positive samples are then sequenced using forward and reverse primers, and full-length sequences are assembled from overlapping reads. The *ompA* genotype of the infecting strain is determined by aligning our sequences against those of defined clinical isolates in the NCBI BLASTn database. The *ompA* genotypes of many CT NAAT-positive patients in our cohort have been identified thus far. In addition, we have identified the genotypes of CT strains isolated from one woman who spontaneously cleared an infection without antibiotics, one woman who had a pharyngeal infection, and one woman with a rectal infection. The patient who was able to spontaneously clear genital infection and the patient with a pharyngeal infection were both found to have serovars that are fairly rare in our patient population, while the rectal infection was found to be a more common strain. We aim to learn more about the serovars infecting our patient population at these atypical sites to gain more insight about why CT successfully infects patients at these locations.