with different disease phenotypes along with distinct tissue tropisms. The extra chromosomal plasmid of *Chlamydia trachomatis* is suggested to encode genes essential for chlamydial infection and transmission. Using an in silico plasmid MLST scheme, the clustering of *C. trachomatis* isolates was investigated in association with previously defined ompA bivars.

**Methods:** In silico analysis using publicly available whole genome sequence data (WGS) of *C. trachomatis* isolates deposited in the Chlamydiadis pubMLST database (http://pubmlst.org/chlamydiadis/) was performed. Only data from WGS were investigated ensuring that complete sequence data in all eight known plasmid genes and ompA were included. An in silico plasmid MLST scheme was developed to assign allele numbers and plasmid sequence types to all included isolates. Clustering of *C. trachomatis* plasmids was assessed using minimum spanning tree analysis. Moreover, we performed a polymorphism analysis of each plasmid gene.

**Results** Using the in silico plasmid MLST scheme, plasmid alleles and sequence types were successfully assigned to 157 *C. trachomatis* isolates. Overall, 47 unique plasmid sequence types were detected. Minimum spanning tree analysis identified 5 large clusters, which showed clustering of *C. trachomatis* plasmids according to the ompA defined bivars. Further analysis of individual plasmid genes showed that besides specific STs, each biovar also had distinct plasmid alleles. Moreover, analysis of the polymorphic variation of plasmid genes confirmed that the *C. trachomatis* plasmid was highly conserved with all isolates sharing >99% sequence identity.

**Conclusion:** In silico multilocus sequence typing of *C. trachomatis* plasmids showed clustering of isolates according to biovars, suggesting that the *C. trachomatis* plasmid along with specific plasmid genes may play a role in the distinct disease phenotypes found in *C. trachomatis* infections.

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**Abstracts**

**Development and Validation of an In-House Real-Time Polymerase Chain Reaction Assay for the Detection of *Chlamydia Trachomatis***

Camila Gurgel dos Santos, Marbeille Sabido, André Luiz Leturiondo, Cynthia de Oliveira Ferrerina, Thelma Pereira da Cruz, Adele Schwartz Benzaken. Universidade do Estado Do Amazonas, Manaus – AM, Brazil; Fundação De Medicina Tropical Doutor Heitor Vieira Dourado (FMT-HVD), Cataluny, Spain; Fundação Alfredo da Matta, Manaus – AM, Brazil. 10.1136/sextrans-2017-053264.116

Introduction In Brazil, the Digene Hybrid Capture II DNA test (HCII CT-ID - Qiagen) is the only molecular test used to identify *Chlamydia trachomatis* (CT). This test has shown sensitivity and specificity ranging from 93.8%–97.7% and 95.9%–100.0%, respectively, compared to that of culture. However, up to 27.7% of negative results are false. Real time polymerase chain reaction (qPCR) offers both high sensitivity and specificity. The objective of this study is to describe the development, assess the performance, and costs, of a new in-house qPCR assay for the diagnosis of genital chlamydial infection.

**Methods** Asymptomatic women aged 14–25 years who attended primary health services in Manaus, Brazil, were screened for CT using the HCII CT-ID-test. A subset of 70 specimens were tested using an in-house qPCR and a commercial qPCR (Artus qPCR) as a reference test. A primer/probe based on the sequence of cryptic plasmid was designed. An economic evaluation was conducted from the provider’s perspective. Overall, 292 specimens were tested by both the commercial kit qPCR and the in-house qPCR.

**Results** The primers and probe designed for the CP target showed specificity, because no cross-reaction was observed for other STI species tested or with the human DNA. We were able to standardise this reaction in 10 μL and 5 μL volumes for the CP and β-actin set primers, respectively. The sensitivity, specificity, positive and negative predictive values of in the in-house qPCR were 99.5% (95% confidence interval [CI]: 97.1–100), 95.1% (95% CI: 89–98.4), 97.4% (95% CI: 94–99.1), and 99.0% (95% CI: 94.5–100), respectively. The cost per case of CT was $0.55 for HCII CT-ID, $1.45 for Artus qPCR and $1.33 for in-house qPCR.

**Conclusion** In conclusion, we have developed an in-house qPCR to detect cervicovaginal CT targeting CP primers. The in-house qPCR method was its lower cost. Findings from this study can help to revise the national recommendation of using HCII CT-ID. The in-house qPCR should be considered as a good candidate for the diagnostic method for screening programs in Brazil.