Chapter 8

Conclusion
8. CONCLUSIONS

In the background of scanty data available from India on genital chlamydial infection, the present study carried out research investigations (i) to study the epidemiology of genital chlamydial infection in the apparently healthy population of Tamil Nadu (ii) to study the infections due to C. trachomatis in different clinical groups of symptomatic STD patients (iii) to evaluate conventional and molecular methods of Chlamydia diagnosis and (iv) to study the association between chlamydial infection and HIV infection. The following conclusions could be made out of the study:

8.1. Even though the prevalence rates determined were relatively low (1.1% by PCR and 2.4% by IgM serology), the results of the study indicate that there is a significant burden of undiagnosed asymptomatic genital chlamydial infection in the general population of Tamil Nadu. This pool of asymptomatic infection is of great concern as this could contribute to the silent transmission of the disease in the community. Periodic community-based Chlamydia screening programmes are required to plan and implement prevention strategies.

8.2. The present population-based study is the first of its kind in India. The study provided an example of feasibility and benefits of a population-based survey combined with appropriate noninvasive screening methods in the research on
the epidemiology of genital chlamydial infections. The baseline data from the present study is useful in the programmatic implication of targeted intervention of these sexually transmitted infections in Tamil Nadu.

8.3. Even though significant correlation of genital chlamydial infection with the known risk factors could not be made out except for the known high-risk behaviour, preventive intervention through education and awareness should be adopted by public health authorities at every level to promote safe sexual practices and healthy lifestyles.

8.4. The study in symptomatic STD patients indicates that genital infections due to *C. trachomatis* are prevalent significantly in this part of the country to a level of 30.8% and was higher when compared to gonococcal infections (18.2%).

8.5. The higher prevalence rate of chlamydial infection in men (34.9%) than women (27.5%) in this study population reflects the high-risk behaviour of men with a heightened potential for transmitting the infection to their female partners. Partner notification and prompt treatment are important to control the infection rate in this group of high-risk individuals.

8.6. It is evident from the present study that clinical signs and symptoms can be unreliable in specifically predicting infections with *C. trachomatis*. Therefore, it should be considered that syndromic management alone may miss majority of these infections. Our results emphasize the need for a routine screening
strategy in STD clinic attendees, both men and women to reduce the rate of CT infections.

8.7. Premarital sex and multiparner sex were identified as risk factors for chlamydial infection in the symptomatic study population. However, it may be appropriate to think all behavioural/sexual risk factors could potentially interplay for the acquisition of genital chlamydial infections. The oral contraceptive use in women seems to promote a higher infection rate with *C. trachomatis*.

8.8. An array of diagnostic methods for *C. trachomatis*, both conventional and molecular markers have been utilized in this study. In-house diagnostic systems including isolation in cell culture using McCoy cell line and PCR assays based on different gene targets (plasmid and MOMP) were standardized. These in-house systems as well as commercial assays were evaluated for their diagnostic efficacy.

8.9. The evaluation of diagnostic systems revealed that molecular methods stand out superior to conventional methods increasing substantially the detection rate of CT infection.

8.10. The overall analysis revealed that PCR is the most sensitive technique for the diagnosis of genital chlamydial infections when performed in genital swab specimens from symptomatic patients. It is prudent to monitor for the presence
of PCR inhibitory substances if urine samples are used as clinical materials to avoid false negative results.

8.11. Culture was relatively less sensitive (61.4%) and has shown to be an inadequate reference standard for the diagnosis of chlamydial infections. The use of an expanded gold standard using culture with minimum two nucleic acid amplification tests seems to be inevitable for the evaluation of molecular assays.

8.12. Antigen detection by the DFA technique appears to be a good diagnostic alternative in resource-limited settings where culture or PCR could not be performed.

8.13. Our observations revealed that 75% of the HIV positive cases with CT infection in the symptomatic study population were men. This calls for urgent attention to evolve sexual risk reduction strategies in men.

8.14. The results of the present study clearly indicate the association between chlamydial infection and HIV infection. Ensuring prompt treatment and cure for Chlamydia infected patients may substantially reduce the risk of acquisition of HIV disease. Management strategies are needed for Chlamydia infected HIV positive cases to prevent aggressive chlamydial disease.