



## Diagnostics of *Neisseria gonorrhoeae* in oropharyngeal samples: what is the clinical relevance of detection of very low gonorrhoeal concentrations in these samples?

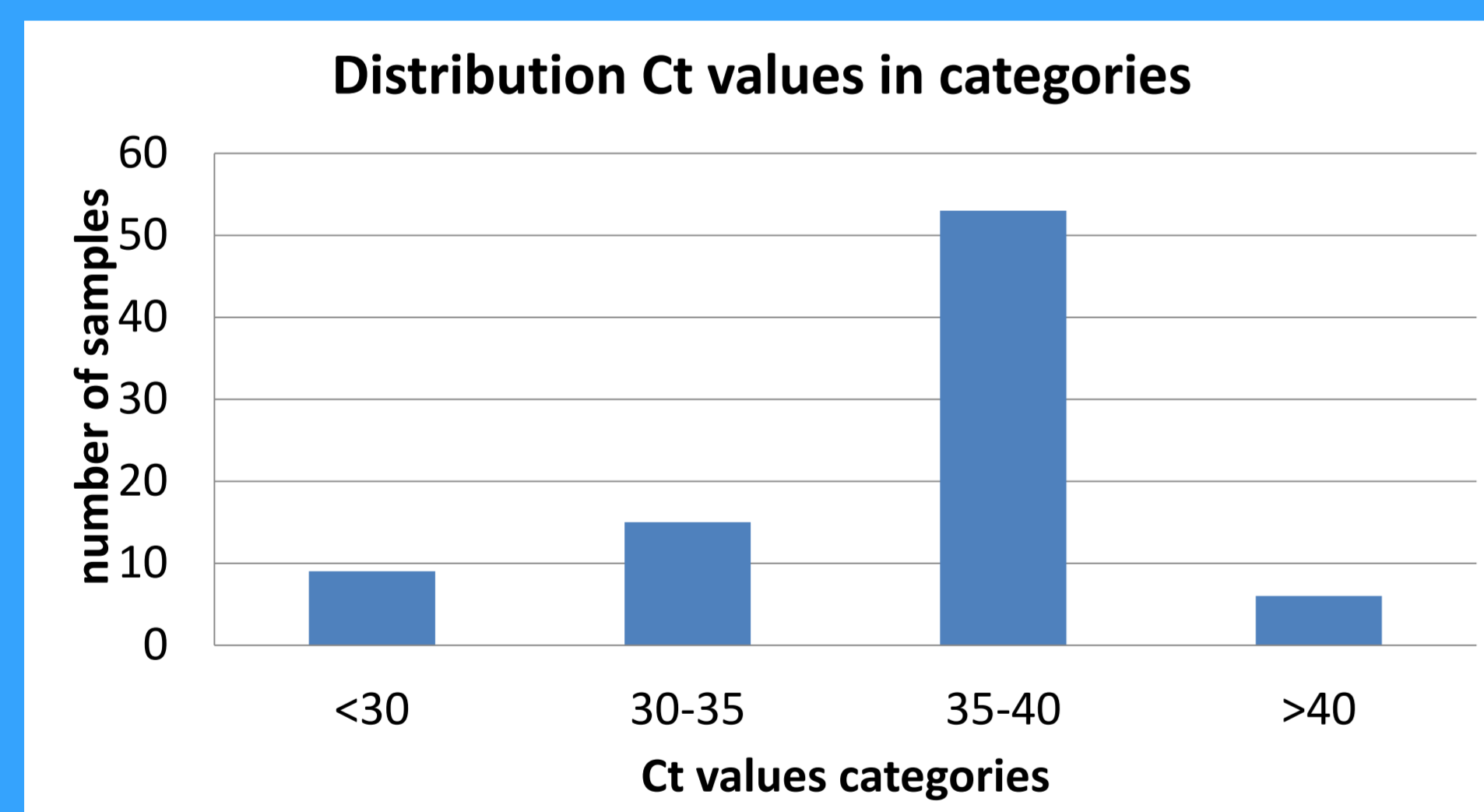
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### Introduction

No current tests for the diagnosis of *Neisseria gonorrhoeae* (NG) are validated for detection in oropharyngeal samples in contrast to detection in urogenital samples. Nonetheless, these tests are employed to diagnose oropharyngeal NG (mainly in high risk groups such as men who have sex with men) by lack of a better alternative (Schachter et al., STD, 2008). The objective of this study was to analyse real-time PCR data for detection of NG in oropharyngeal samples.

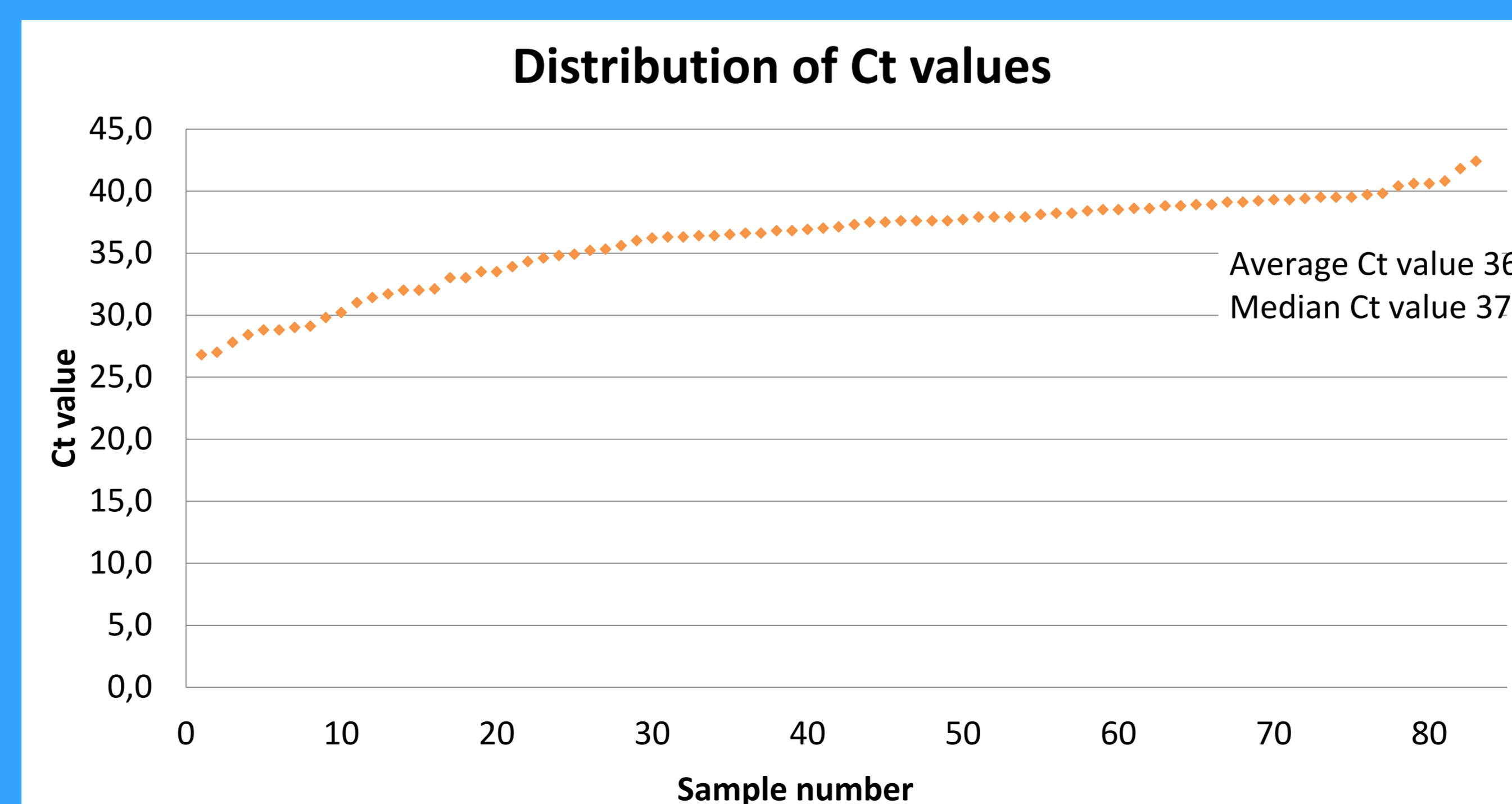


### Methods

All oropharyngeal samples obtained by the STI clinic South Limburg, the Netherlands in 2013 were included in this study. Samples were tested for the presence of NG by COBAS 4800 (Roche Diagnostics), a NG dual-target commercial real-time PCR assay. On a selected group of samples, an in-house NG qPCR assay was applied as well (Hopkins et al., STI, 2010).

### Results

In total 1894 oropharyngeal samples were included in this study of which 83 were found to be NG positive. In 77% of patients the oropharyngeal sample was the only sample which tested positive (urogenital and anorectal samples remained negative). The observed PCR Ct values varied between Ct 27- 42, however 70% of these samples had a Ct value higher than 35. This study included samples from 4 patients, who were part of a larger clinical study for which oropharyngeal samples were taken during a screening visit as well as prior to treatment. The NG Ct values on their initial visit were high (Ct 35-39) but remained detectable upon testing of the follow-up sample (Ct 36-39).



### Conclusion

This study indicates that the bacterial NG load in the majority of oropharyngeal samples is low and furthermore, in most patients, this is the only NG positive sample found. This raises the question what the clinical importance is of the NG in these samples. Pilot data of 4 cases showed that in spite of the low NG load, all 4 cases remain positive upon retesting. This may suggest that the results may indeed reflect clinically relevant infections. As these samples were positive for three NG specific targets, false-positive detection due to other *Neisseria* species is unlikely.

Future work will focus on inclusion of more cases of who multiple oropharyngeal samples are collected.

### References

- Hopkins MJ, Ashton LJ, Alloba F, Alawattagama A, Hart IJ. 2010. Validation of a laboratory-developed real-time PCR protocol for detection of Chlamydia trachomatis and Neisseria gonorrhoeae in urine. Sex Transm Infect 86:207-11.
- Schachter J, Moncada J, Liska S, Shayevich C, Klausner JD. 2008. Nucleic acid amplification tests in the diagnosis of chlamydial and gonococcal infections of the oropharynx and rectum in men who have sex with men. Sex Transm Dis 35:637-42.