

A comparison of GC whole plate versus bi-plate for culture of *Neisseria gonorrhoeae*

Authors:

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Background:

In Australia, culture is recommended after a positive NAAT result before treatment to capture the antimicrobial resistance profile, however the sensitivity of culture for *N. gonorrhoeae* is low for oropharyngeal infections. This study aimed to compare the positivity of culture for *N. gonorrhoeae* for samples inoculated with GC bi-plate versus GC whole plate to inform best clinical practice.

Methods:

We conducted a cross-sectional study at Melbourne Sexual Health Centre between April and June 2021. During the 8-week study period, clinicians alternated between using GC bi-plates and GC whole plates for self-collected samples for routine culture of *N. gonorrhoeae* following a positive Aptima NAAT or on the same day for symptomatic clients. All cultures for gonorrhoea were included for clients with a positive NAAT during the study period. Fisher's exact test was used to compare the gonorrhoea positivity by culture between two plates, stratified by anatomical sites.

Results:

There were 276 eligible clients included in the study: 103 (37.3%) had culture done on the same day as NAAT and 173 (62.7%) had culture done between 1-14 days after NAAT, with a median of 5 (IQR:3-6) days. During the study period, there was no significant difference in gonorrhoea positivity by culture between GC bi-plate and GC whole-plate across all sites (69.5% vs 64.8%; $p=0.439$), at oropharynx (44.3% vs 36.2%, $p=0.382$), urethra (97.5% vs 95.7%, $p=1.000$), or rectum (69.7% vs 74.0, $p=0.681$). For clients had culture done between 1-14 days after NAAT, there was no significant difference in positivity between culture done in 1-5 days versus 6-14 days across all sites ($p=0.428$), at oropharynx ($p=0.623$), urethra ($p=1.000$) and rectum ($p=0.678$).

Conclusion:

There was no significant difference in culture positivity of *N. gonorrhoeae* with GC bi-plate versus GC whole plate. More research is needed to optimise culture positivity for *N. gonorrhoeae* for antimicrobial resistance monitoring and surveillance.

Disclosure of Interest Statement:

The Australasian Society for HIV, Viral Hepatitis & Sexual Health Medicine recognises the considerable contribution that industry partners make to professional and research activities. We also recognise the need for transparency of disclosure of potential conflicts of interest by acknowledging these relationships in publications and presentations.

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