

Rapid molecular point-of-care test for Strep A pharyngitis in remote-living school aged children

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Background: Accurate and timely diagnosis of Strep A pharyngitis in remote settings can be challenging. The availability of molecular point-of-care testing (PoCT) for Strep A pharyngitis may revolutionise primary prevention strategies in children at high risk of acute rheumatic fever. We aimed to evaluate the performance of a rapid molecular PoC test for Strep A pharyngitis in remote-living children in the Western Australia (WA).

Methods: Our primary school-based prospective surveillance program evaluated the epidemiology of Strep A infection in two towns within the Kimberley WA, comprising: (1) cross-sectional screening two times a year, and (2) weekly active surveillance visits once a week. Between April 2021 and September 2022, consented children were screened for pharyngitis and provided throat swabs for gold standard microbiological culture and PoCT using the Strep A ID NOW machine. We calculated the sensitivity, specificity, positive (PPV) and negative predictive values (NPV). PoC test performance was compared to the microbiological culture results.

Results: Strep A PoCT was performed on 122 instances of sore throat. Twenty-nine (24%) tests were positive by PoCT, of which ten also produced positive culture results. One culture positive result was not detected by PoCT. We calculated a POCT sensitivity of 90.1%, specificity of 82.9%, PPV 34.5% and NPV 98.9%. Potential false positive results due to detection of other *Streptococcal* species (e.g. *S. dysgalactiae*) warrants further molecular investigation.

Conclusion: The high sensitivity of molecular Strep A tests may represent an advantage in detection and early treatment of pharyngitis. We confirm the value and feasibility of molecular PoC testing in remote Australian settings to improve diagnosis and treatment of Strep A pharyngitis.

Disclosure of Interest Statement: We recognise 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.