**Evaluating performance of rapid point-of-care antibody testing for hepatitis C**

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**Background:** People with a history of injecting drugs (PWID) have a disproportionate burden of hepatitis C. Engaging PWID in care is challenging due to the multiple pathology visits required to initiate testing and treatment, compounded by physical, psychological, and social comorbidities. Streamlined pathways are crucial for timely diagnosis and treatment. This study investigates the reliability of rapid point-of-care antibody testing in indicating the presence of hepatitis C RNA.

**Methods:** The QuickStart study, a crossover randomised control trial, has three nurse–led intervention arms and one control arm in primary care settings. Intervention arms use OraQuick rapid point-of-care antibody testing, with results read at five and 20 minutes. Invalid test results were excluded from calculations.

**Results:** Among 242 participants with five-minute rapid antibody and hepatitis C RNA test results, 69 were RNA positive and 164 were RNA negative. Five-minute antibody testing identified 67 true RNA positives (sensitivity=97%) and 58 true RNA negatives (specificity=35%) with 106 false positives and two false negatives (positive predictive value=39%; negative predictive value=97%). Extending the antibody test read time to 20 minutes increased sensitivity to 100%, but raised false positives from 106 to 122, reducing specificity to 27%.

**Conclusion:** While previous studies have highlighted the potential of rapid antibody testing for indicating hepatitis C RNA presence, predominantly in treatment-naïve populations, our findings underscore the importance of context-specific considerations. Our notable false positive rate, likely driven by elevated rates of previous treatment and spontaneous clearance in PWID, compromised the utility of rapid antibody results as surrogates for RNA testing. Nonetheless, in populations where follow-up for RNA testing poses challenges, rapid antibody tests may issue behavioural nudges to engage in treatment or future testing. In our sample, a five-minute antibody test would lower overdiagnosis rates compared to a 20-minute test, at the cost of missing 3% of true positives.

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