

Use of diagnostics for serosurveillance studies in pregnant individuals during the SARS-CoV-2 pandemic

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March 7, 2023

Abstract

Pregnant individuals are known to be at increased risk of worse outcomes from COVID-19 infection. Recent data suggests that they are also more likely to exhibit milder symptoms and have higher rates of asymptomatic infection. The health impacts of milder disease are less well-described but may include adverse perinatal outcomes. Serosurveillance can help describe accurately background rates of seropositivity in populations with high rates of asymptomatic infection. The seroprevalence of SARS-CoV-2 infection prior to vaccine availability was assessed in two large maternity centres. Of 437 pregnant individuals, seven were positive on initial screening, with one false positive identified on subsequent confirmatory testing. An overall seropositivity rate of 1.4% was found. No adverse pregnancy outcomes were identified. Confirmatory testing was performed with four commercial antibody-based assays and an in-house microneutralisation assay. Wantai SARS-CoV-2 receptor-binding-domain total antibody performed best, similar to previous reports. Serological surveillance can estimate infection rates not captured by acute PCR testing, and may assist with contact tracing, estimation of immunity rates and inform public health policy in at-risk groups. Evaluation of serological assays should be integrated into serosurveillance initiatives.

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