

COVID-19 Seroprevalence in a Mixed Cohort of SARS-CoV-2 PCR Positive and Exposed Subjects

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Abstract

1.1 Background Early in the SARS-CoV-2 pandemic, polymerase chain reaction (PCR) testing was reserved for symptomatic patients. However, many infections were asymptomatic or mildly symptomatic. Positive serologic antibody (Ab) testing is theorized to be a marker of prior infection, allowing for identification of true burden of disease and establishing links between outbreaks. **1.2 Objective** Assess serologic testing in subjects after PCR testing and compare seropositivity rates of household vs. non-household close contacts. **1.3 Methods** We identified subjects who were PCR-positive between March 2020 and May 2021. Index cases and close contacts then underwent serologic testing for IgG against SARS-CoV-2 nucleocapsid N-protein. **1.4 Results** One-hundred-and-thirteen subjects underwent serologic testing with a sensitivity of 65.0%, specificity of 78.9%, positive predictive value of 92.9%, and negative predictive value of 34.9%. Index cases comprised 20.5% of subjects, and 73.9% were seropositive ($p=0.01$). Close contacts included 72% household contacts and 28% non-household contacts. One seropositive case had no prior PCR and four were PCR negative. No statistical difference existed in seropositivity between household and non-household contact (53.1% vs. 43.8%, $p=0.4$). **1.5 Conclusions** Testing for IgG against SARS-CoV-2 N-protein may identify previously unrecognized infections in the community. Seropositivity rates of household vs. non-household contacts were not significantly different, and >50% of household contacts were seropositive.

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