

The second round of a population-based seroprevalence study of anti-SARS-CoV-2 antibodies and the assessment of COVID-19 vaccination in the Republika Srpska, Bosnia and Herzegovina

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Abstract

Introduction: The aim of the study was to assess the seroprevalence of SARS-CoV-2 in the Republika Srpska, Bosnia and Herzegovina, after five waves of COVID-19 and one year after introduction of vaccination to better understand the true extent of the COVID-19 pandemic and role of vaccination in achieving herd immunity. **Methods:** The population-based study was conducted from December 2021 to February 2022 in a group of 4,463 individuals from the Republika Srpska. Total anti-SARS-CoV-2 antibodies were determined in serum specimens using the Wantai total antibody ELISA assay and Kantaro Quantitative IgG assays. **Results:** The overall cumulative seroprevalence was 94.6%. Of all participants, 61.3% were vaccinated against COVID-19. Significantly higher seroprevalence rates were observed among vaccinated participants. Among various professions, the highest seroprevalence was found in the service industry (98.1%), education (98.0%) and healthcare (96.9%). This study found that 2.2% of vaccinated participants, and 3.6% of individuals with SARS-CoV-2 positivity during 2021, had no detectable IgG antibodies. Both seroprevalence and antibody titres were significantly higher in people with hybrid immunity. **Conclusion:** Our findings reveal a 2,3-fold increase in seroprevalence of SARS-CoV-2 antibodies due to infection and vaccination, comparing to the first study performed one year earlier. This study provides better understanding of the SARS-CoV-2 transmission and highlights the important role of the vaccination in achieving the population immunity. Periodically conducted population-based seroprevalence studies are important for assessment of surveillance system performance and public compliance with vaccination policies. **Keywords:** COVID-19, SARS-CoV-2 antibodies, seroprevalence, population-based study, Bosnia and Herzegovina, UNITY, SEROPREV.

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