Review of: "Exploratory analysis of immunization records highlights decreased SARS-CoV-2 rates in individuals with recent non-COVID-19 vaccinations"

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I would like to thank you for the opportunity to review this manuscript. The auhtors in an exploratory study analyzed immunization records from 137,037 individual who received SARS-CoV-2 PCR test. They reported that polio, Hemophilus influenzae type-B, measles-mumps-rubella (MMR), varicella, pneumococcal conjugate (PCV13), geriatric flu, and hepatitis A / hepatitis B vaccines administered in the past 1, 2, and 5 years are associated with decreased SARS-CoV-2 infection rates, even after adjusting for geographic SARS-CoV-2 incidence and testing rates, demographics, comorbidities, and number of other vaccinations. Furthermore, age, race/ethnicity, and blood group stratified analyses reveal significantly lower SARS-CoV-2 rate among black individuals who have taken the PCV13 vaccine, with relative risk of 0.45 at the 5 year time horizon. The results suggest a protective effects of existing non-COVID-19 vaccines on SARS-Cov2 infection. This is a very interesting topic and a large sample size was considered. Despite its' strengths, several issues should be considered. As underlined by the authors, the results are biased from numerous unobserved confounders and other factors (starting from selection criteria (that may include an healthy user effect"). Even though a stratified analysis was done, the inclusion of the pediatric patients (<18 years) could confuse the interpretation of the results, also considering different age between vaccinated and unvaccinated subjects. Not all sections of the manuscript are easy to read (large number of tables, figure not well represented, part of the information included in the introduction should be in the methods, discussion not completely exhaustive) This study (published in february, 2021, 26), is an interesting exploratory analysis however the results are not very strong to support the conclusions.