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TRANSFUSION

The evolution of COVID-19 vaccination within a US blood center

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A national blood center licensed predominantly in the western half of the United States questions blood donors regarding receipt of at least 1 dose of COVID-19 vaccine and tests blood samples for the presence of SARS-CoV-2 antibodies (total Ig anti-spike, VITROS Anti-SARS-CoV-2 Total Reagent Pack, Ortho Clinical Diagnostics, Rochester, NY). All positive anti-spike samples are reflexed to a total Ig nucleocapsid (NC) antibody assay (Elecsys Anti-SARS-CoV-2, Roche Diagnostics, Indianapolis, IN). Successful allogeneic blood donors (n = ~428,925; convalescent plasma donors excluded) had a higher proportion of self-reported vaccinations than Americans aged ≥16 years as per the Centers for Disease Control and Prevention, although the trajectory and geographic variability of the observed increase from 5% to 71.7% over 19 weeks was similar.[1,2] Figure 1 shows by-donor data within each week. Returning donors were recounted in different weekly cohorts. As repeat donations grew from individuals previously reporting vaccination (without a documented interval prior to donation), the rate of spike antibody positivity rose from 55% to 98.5%. Of vaccinees with spike antibodies, 13%–20% also demonstrated NC antibody, suggestive of illness-related exposure to NC antigen in addition to spike exposure through vaccination and/or COVID-19 infection. Of individuals denying vaccination, spike antibody proportions increased from 14% to as high as 38% with associated NC antibody positivity of 93%–95%, indicating a true rise in natural COVID-19 infection for this group. This is consistent with latest available values suggesting that 9.1% of donations with spike antibodies are from unvaccinated individuals (compared with 9.9% predicted from self-reported non-vaccinees with NC antibody-confirmed spike antibody).

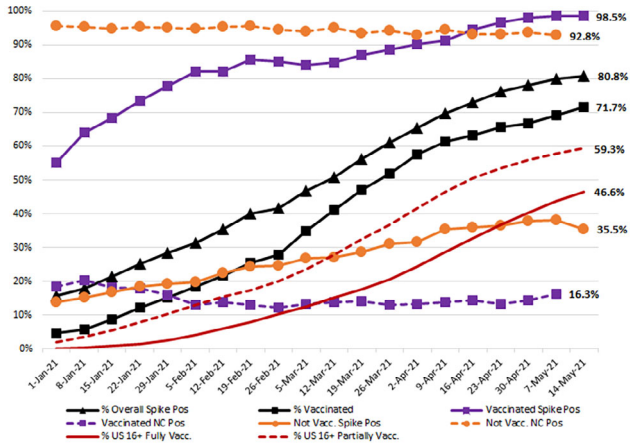

FIGURE 1 Allogeneic donation vaccination rates and % positive antibody results

Abbreviations: COVID-19, Coronavirus Disease 2019; SARS-CoV-2, Severe Acute Respiratory Syndrome Coronavirus-2; NC, nucleocapsid.

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CONFLICT OF INTEREST

The authors have disclosed no conflicts of interest.

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