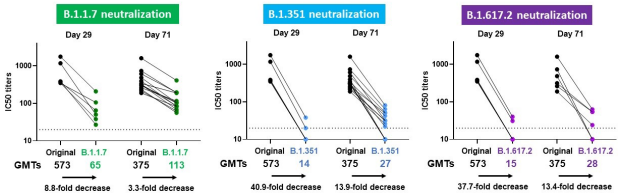
Figure 1. Neutralization of B.1.1.7 (Alpha), B.1.351 (Beta), and B.1.617.2 (Delta) lineages in serum samples from participants who received Ad26.COV2.S. n = 6 samples at Day 29 and n = 14 (n = 14 for Alpha and Beta; n = 6 for Delta, comprising the same 6 participants at Day 29) samples at Day 71 after vaccination with a single dose of Ad26.COV2.S (5 x 10^10 vp dose level) were analyzed in wild-type virus neutralization assays against the SARS-CoV-2 Victoria strain (D614, black dots), the B.1.1.7 (Alpha; green dots) the B.1.351 (Beta; blue dots), and the B.1.617.2 (Delta; purple dots) lineages. Dots represent the IC50 (inhibitory concentration) titers per participant. Geometric mean titers (GMTs) and fold decrease in neutralizing activity between the original Victoria strain and each lineage are shown.



Conclusion. Ad26.COV2.S-elicited serum neutralizing activity against VOC showed an overall decrease in titers relative to the original strain that was largest for the Beta variant, even though vaccine efficacy against severe–critical COVID-19 was maintained in countries where these variants were circulating versus in countries where they were not circulating. Over time, titers against variants increased, suggesting B-cell affinity maturation leading to increasing coverage of VOC.

Disclosures. **Mathieu Le Gars, n/a**, **Johnson & Johnson** (Employee, Shareholder) **Jerald Sadoff, MD**, **Johnson & Johnson** (Employee, Shareholder) **Mandy Jongeneelen, n/a**, **Johnson & Johnson** (Employee, Shareholder) **Dirk Heerwegh, n/a**, **Janssen Research and Development** (Employee) **Georgi Shukarev, MD**, **Janssen** (Employee) **Carla Truyers, n/a**, **Janssen Research and Development** (Employee) **Anne Marit de Groot, n/a**, **Johnson & Johnson** (Employee) **Gert Scheper, n/a**, **Johnson & Johnson** (Employee, Shareholder) **Jenny Hendriks, n/a**, **Johnson & Johnson** (Employee, Shareholder) **Boerries Brandenburg, n/a**, **Johnson & Johnson** (Employee, Shareholder) **Frank Struyf, n/a**, **Johnson & Johnson** (Employee, Shareholder) **Johan Van Hoof, n/a**, **Johnson & Johnson** (Employee, Shareholder) **Macaya Douoguih, MD, MPH**, **Janssen** (Employee) **Hanneke Schuitemaker, PhD**, **Johnson & Johnson** (Employee, Shareholder)

LB8. Lower SARS-CoV-2 IgG and Pseudovirus Neutralization Titers Post-mRNA Vaccination among People Living with HIV

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Session: 0. Late Breaker Abstracts: COVID-19 Vaccines, Epidemiology, and Clinical
Friday, October 1, 2021: 10:30 AM

Background. Limited data are available on whether there are differences in the immune response to SARS-CoV-2 vaccination by HIV status or by mRNA vaccine type.

Methods. We saved residual outpatient laboratory samples of all previously mRNA-vaccinated individuals in the adult medicine clinics of a public hospital with a large outpatient HIV clinic during May 2021, and then excluded individuals with prior SARS-CoV-2 infection. We next 1:1 matched 100 PLWH to 100 outpatient HIV-negative adult medicine patients receiving care for chronic medical conditions on days since completion of second vaccination (minimum 10), sex, age +/-5 years, and the type of mRNA vaccine received. We defined a non-response as reciprocal pseudovirus neutralizing titer< 10 and anti-RBD IgG< 10 relative fluorescent units, and compared non-response by HIV status using mixed models.

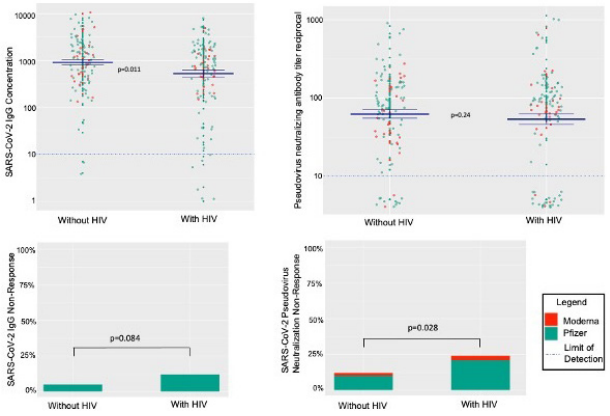
Results. In each matched group there were 13 women; 25 received the mRNA-1273 vaccine and 75 received the BNT162b2 vaccine; the median age was 59. The median time from second vaccination was 35 days (IQR: 20–63). Among PLWH, the median CD4+ T-cell count was 511 (IQR: 351–796) and 5 individuals had HIV RNA > 200.

We found 2.4-fold greater odds of pseudovirus neutralizing antibody non-response among PLWH compared to people without HIV (95% CI=1.1–5.4). Although few individuals in each group did not mount an IgG response (12 among PLWH vs. 5; p=0.08), continuous anti-RBD IgG concentrations were 43% lower among PLWH (95% CI=0.36–0.88).

Among PLWH, when adjusting for age, sex, and days post-vaccination, each 100-cell increase in CD4+T-cell count was associated with 22% higher neutralizing antibody titers (GMR 1.22; 95% CI=1.09–1.37). Unsuppressed HIV RNA >200 was associated with 89% lower neutralizing antibody titers (GMR 0.11; 95% CI=0.01–0.84). Receipt of the BNT162b2 vs. mRNA-1273 vaccine was associated with 77% lower neutralizing titers (GMR 0.23; 95% CI=0.08–0.65) among PLWH.

Post-mRNA Vaccination SARS-CoV-2 IgG Concentrations and Pseudovirus Neutralizing Titers by HIV Status and Vaccine

Conclusion. PLWH had lower than expected response to mRNA SARS-CoV-2 vaccines, with the highest non-response among those with low CD4+ counts, unsuppressed HIV RNA, and those who received the BNT162b2 vaccine. Immunization strategies to improve immune responses among PLWH should be studied, and may include booster vaccination or preference of the mRNA-1273 vaccine in this group.



Disclosures. **Matthew A. Spinelli, MD, MAS**, Nothing to disclose **Monica Gandhi, MD, MPH**, Nothing to disclose

LB9. Longitudinal antibody dynamics in children infected with SARS-CoV-2 through 6 months post-infection

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Session: 0. Late Breaker Abstracts: COVID-19 Vaccines, Epidemiology, and Clinical
Friday, October 1, 2021: 10:45 AM

Background. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection elicits antibodies (Abs) that bind several viral proteins such as the spike entry protein and the abundant nucleocapsid (N) protein. We examined convalescent sera collected through 6 months (~24wks) post-SARS-CoV-2 infection in children to evaluate changes in neutralization potency and N-binding.

Methods. Outpatient, hospitalized, and community recruited volunteers < 18 years with COVID-19 were enrolled in a longitudinal study at Seattle Children's Hospital. Analysis includes symptomatic and asymptomatic children with laboratory-confirmed SARS-CoV-2 infection who provided blood samples at approximately 4wks (range: 2-18wks, IQR:4-8wks) and 24 wks (range: 23-35wks, IQR:25-27wks) after diagnosis. We measured neutralizing Ab using an in-house pseudoneutralization assay and anti-N binding Ab using the Abbott Architect assay.

Results. Of 32 children enrolled between April 2020 and January 2021, 27 had no underlying immunocompromised state and 25 of these 27 children had symptomatic disease. Ten of 27 had a > 2-fold decrease neutralization titers between 4 and 24wks (most were < 10-fold); 12 had < 2-fold change; and 5 had neutralization titers that increased > 2-fold over time (Fig. 1A). All but one of these 27 children had detectable neutralizing activity at 24wks. Anti-N Abs were assessed for 25 children at 4wks and 17 children at 24wks (data pending for 14 samples); all children with paired samples had a > 1.75-fold Abbott index reduction at 24wks, and 5 children had no detectable anti-N Abs by 24wks (Fig. 2A). An additional 5 children with symptomatic disease had complicating immunosuppression or multiple blood transfusions; 2 had decreasing neutralizing titers, 2 increased, and 1 had no change (Fig. 1B). Anti-N Abs were undetectable for one child by 24wks (data pending for 4 samples) (Fig. 2B). No participants received COVID-19 vaccine.