10.5%). A total of 23 HCWs complained of systemic rash and/or angioedema that occurred anytime post vaccination. Fifteen HCWs (0.29% of the cohort) were considered to have probable allergic reaction to the vaccine. None of the reactions were classified as anaphylaxis or severe reactions, but 4 HCWs required short hospitalization stay for observation. HCWs with pre-existing allergy had 2.6 times the risk of having probable vaccine-related allergic reaction than HCWs without pre-existing allergy (RR 2.6, 95% CI 0.9 to 7.3, p=0.068) but this was not statistically significant.

***Conclusion.*** No anaphylaxis or severe reactions were observed in our institution. Acute side effects in our cohort were in line with published trial reports. We noted a raised relative risk of 2.6 of pre-existing allergy with probable vaccine-related allergic reaction but this was not statistically significant.

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**586. Immunogenicity of COVID-19 mRNA Vaccines in Patients with Lymphoid Malignancies**

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**Session:** P-25. COVID-19 Vaccines

***Background.*** Patients with lymphoid malignancies are at high risk of severe COVID-19 disease and were not included in the phase 3 mRNA vaccine trials. Many patients with lymphoid malignancies receive immunosuppressive therapies, including B-cell depleting agents, that may negatively impact humoral response to vaccination.

***Methods.*** We recruited patients with lymphoid malignancies and healthy participants who planned to receive two doses of SARS-CoV-2 mRNA vaccine (BNT162b2 or mRNA-1273). Blood was drawn at baseline, prior to second dose of vaccine, and 28 days after last vaccination. Disease characteristics and therapies were extracted from patients' electronic medical record. An ultrasensitive, single molecule array (Simoa) assay detected anti-Spike (S), anti-S1, anti-receptor binding domain (RBD), and anti-Nucleocapsid (N) IgG from plasma at each timepoint.

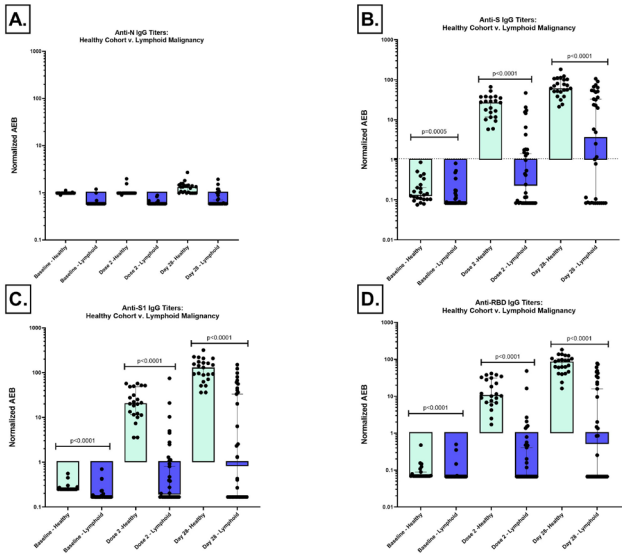
***Results.*** 23 healthy participants and 37 patients with lymphoid malignancies were enrolled (Table 1). Low titers of anti-N (Fig 1A) demonstrate no prior exposure or acquisition of COVID-19 before vaccination or during the study. 37.8% of the lymphoid malignancy cohort responded to the vaccine, using an internally validated AEB cutoff of 1.07. A significantly higher magnitude of anti-S (p< 0.0001), anti-S1 (p< 0.0001) and anti-RBD (p< 0.0001) are present in the healthy as compared to lymphoid malignancy cohort at the second dose and day 28 post-series (Fig 1B, Fig 1C and Fig 1D). Anti-S IgG titers were compared between the healthy cohort, treatment naïve, and treatment experienced groups (Fig 2). The treatment naïve cohort had high titers by series completion which were not significantly different from the healthy cohort (p=0.2259), although the treatment experienced group had significantly decreased titers (p< 0.0001). Of the 20 patients who had received CD20 therapy, there was no clear correlation of anti-S IgG response with time from CD20 therapy, although most patients who received CD20 therapies within 12 months from the vaccine had no response (Figure 3).

Table 1. Demographics

| | Healthy Cohort (n=23) | Lymphoid Malignancy (n=37) |
|---|---|---|
| **Median Age (Range)** | 24 (22-56) | 68 (30-82) |
| **Female Sex - no. (%)** | 13 (56.5) | 21 (56.8) |
| **Vaccine Type - no. (%)** | | |
| *mRNA-1273* | 14 (60.1) | 12 (32.4) |
| *BNT162b2* | 9 (39.1) | 25 (67.6) |
| **Disease Type - no. (%)** | | |
| *CLL* | NA | 21 (56.8) |
| *DLBCL* | NA | 2 (5.4) |
| *MCL* | NA | 4 (10.8) |
| *FL* | NA | 3 (8.1) |
| *MZL* | NA | 2 (5.4) |
| *HL* | NA | 4 (10.8) |
| *T-cell lymphoma* | NA | 1 (2.7) |
| **Treatment Status - no. (%)** | | |
| *Treatment Naïve* | NA | 8 (21.6) |
| *Treatment Experienced* | NA | 29 (78.4) |
| **Prior CD20 Ab Therapy - no. (%)** | | |
| *Yes* | NA | 20 (54.1) |
| *No* | NA | 17 (45.9) |

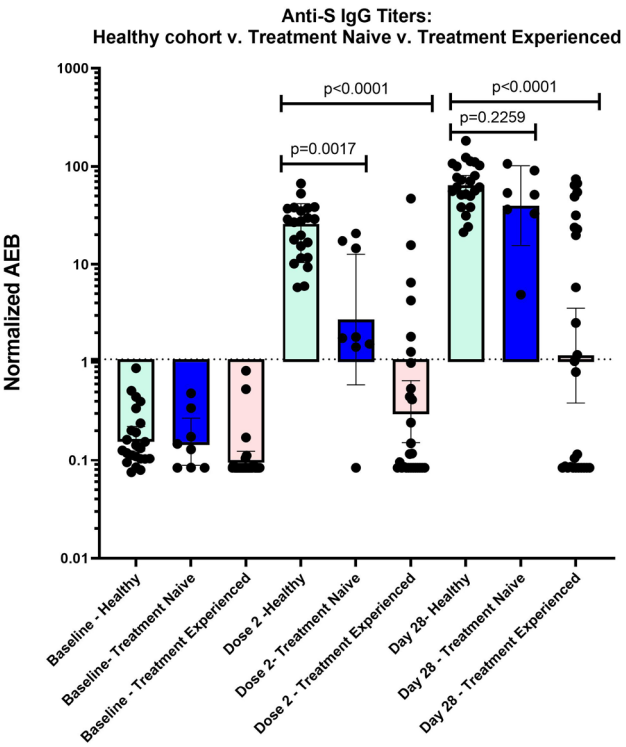
CLL: chronic lymphocytic leukemia; DLBCL: diffuse large B-cell lymphoma; MCL: mantle cell lymphoma; FL: follicular lymphoma; MZL: marginal zone lymphoma; HL: Hodgkin lymphoma

Figure 1. Anti-N, Anti-S, Anti-S1, Anti-RBD and Anti-N Ig G for healthy v. lymphoid malignancy cohort




The dotted line at 1.07 marks in an internally validated threshold to mark anti-S IgG response. The black bars denote median with 95% CI.

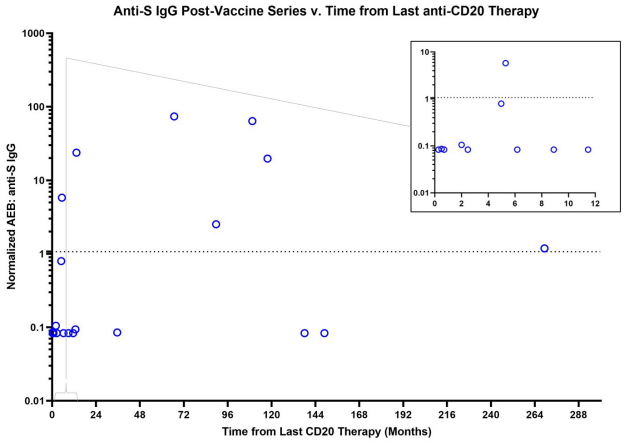
Figure 2: Anti-S IgG for healthy v. treatment naïve v. treatment experienced




The dotted line at 1.07 marks in an internally validated threshold to mark antibody response. The black bars denote median with 95% CI.

***Conclusion.*** The vaccine-induced immune response was poor among treatment-experienced patients with lymphoid malignancies, especially among those who received CD20 therapies within 12 months.

Figure 3. Months from CD20 therapy v. anti-S IgG titers




The dotted line at 1.07 marks in an internally validated threshold to mark antibody response.

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### 587. An Intervention to Improve COVID-19 Vaccination Rates Among Inpatients at a Veterans Affairs Hospital

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**Session:** P-25. COVID-19 Vaccines

***Background.*** Hospitalizations are an opportunity to increase vaccine uptake and hospital-based strategies have been effective at increasing influenza and pneumococcal vaccination. Offering COVID-19 vaccination at discharge can reduce barriers to vaccination and target patients at high risk for severe illness and death. We evaluated a COVID-19 vaccine intervention implemented as part of routine discharge planning.

***Methods.*** We trained healthcare personnel during April 2021 to review and document vaccine eligibility and interest for adult inpatients on medical, surgical, or psychiatric wards at the Atlanta VA Medical Center during discharge planning using a templated note in the electronic medical record (EMR). Outpatient vaccination center personnel were deployed to the participating wards daily (except Sundays) to facilitate vaccine administration at discharge. We measured the percentage of discharged patients with vaccine eligibility documented using the template and compared the number of patients vaccinated at discharge in the 4 weeks pre- and post-training. All Georgia adults became eligible for COVID-19 vaccines on March 25, 2021, prior to our intervention.

***Results.*** Of the 769 patients discharged from one of the participating wards during the 4-week post-training, 474 (62%) had vaccine eligibility documented (Table 1). Of the 474 patients with documentation, 88 (19%) were eligible. Reasons for ineligibility included prior vaccination (n=266, 69%), patient refusal (n=103, 27%), and acute COVID infection (n=12, 3%). Of the 88 eligible patients, 61 (69%) received vaccination before discharge. In total, 16 of 793 inpatients in the pre-training period and 61 of 769 in the post-training period (2% vs 8%; p< 0.05) were vaccinated prior to discharge.

Table 1. COVID-19 vaccine eligibility and vaccination before discharge during the post-training period, reported by week

| Post-training period (dates) | Total discharges | Total screened for vaccine eligibility (n, % of discharges) | Total eligible for vaccine (n, % of screened) | Total vaccinated before discharge (n, % of eligible) | % vaccinated before discharge of all discharges |
|---|---|---|---|---|---|
| 1 (5/3-5/9) | 214 | 134, 63% | 24, 18% | 18, 75% | 8% |
| 2 (5/10-16) | 198 | 120, 61% | 29, 24% | 19, 66% | 10% |
| 3 (5/17-23) | 194 | 118, 61% | 18, 15% | 13, 72% | 7% |
| 4 (5/23-5/28) | 163 | 102, 63% | 17, 17% | 11, 65% | 7% |
| Total | 769 | 474, 62% | 88, 19% | 61, 69% | 8% |

***Conclusion.*** We found relatively high and sustained uptake of an intervention to screen hospitalized patients for COVID-19 vaccination eligibility. Creating a templated note in the EMR resulted in vaccination of nearly 70% of eligible patients prior to hospital discharge.

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### 588. Seroconversion Among Adults After Receiving At Least One Dose of a COVID-19 Vaccine: COVID-19 Community Research Partnership, Mid-Atlantic, Southeast and Southern United States, December 2020-May 2021

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**Session:** P-25. COVID-19 Vaccines

***Background.*** Well-regulated clinical trials have shown authorized COVID-19 vaccines to be immunogenic and highly efficacious. Information about antibody responses after vaccination in real-world settings is needed.

***Methods.*** We evaluated seroconversion rates in adults reporting ≥ 1 dose of an authorized COVID-19 vaccine in a U.S. multistate longitudinal cohort study, the COVID-19 Community Research Partnership. Participants were recruited through 12 participating healthcare systems and community outreach. Participants had periodic home-based serologic testing using either a SARS-CoV-2 nucleocapsid and spike IgM/IgG lateral flow assay (63% of participants) or a SARS-CoV-2 spike IgG enzyme-linked immunosorbent assay (37% of participants). The timing and number of tests before and after vaccination varied based on participant time in study. Participants were included if they were seronegative on the last test before and had >1 test result after vaccination (some had previously been seropositive, but seroreverted). A weighted Cox regression model with right censoring was used to obtain adjusted hazard ratios for sex, age, race/ethnicity, and prior seropositivity. Time-to-event (seroconversion) was defined as time to first positive test > 4 days after vaccination; participants were censored at the date of their last available test result.

***Results.*** 13,459 participants were included and 11,722 seroconverted (Table). Median time in study was 272 days (range 31–395). Median follow-up time from vaccine to last available test was 56 days (range 1–147). Participants had a median of 3 tests (range 1–12) before and 2 tests (range 1–8) after vaccination. Based on the Kaplan-Meier method, median time to seroconversion after first COVID-19 vaccination was 35 days (interquartile range: 25–45). Likelihood of seroconversion decreased with older age (Table). Female participants, non-Hispanic Black participants, and participants who were previously seropositive were more likely to seroconvert (Table).

**Table:** Seroconversion after ≥1 dose of COVID-19 vaccine. — COVID-19 Community Research Partnership, Mid-Atlantic, Southeast and Southern United States, December 2020-May 2021[1]

| Characteristic | All participants, N (%) | Seroconverted,N (%) | Median time to seroconversion*, days | Adjusted Hazard ratio ** |
|---|---|---|---|---|
| Total | 13,459 | 11,722 (87.1%) | 35 | N/A |
| Sex | | | | |
| Female | 8,880 (66.0%) | 7,757 (87.4%) | 34 | Ref. |
| Male | 4,579 (34.0%) | 3,965 (86.6%) | 36 | 0.94 (0.90, 0.98) |
| Age, years[2] | | | | |
| 18–39 | 3,308 (24.6%) | 2,875 (86.9%) | 31 | Ref. |
| 40–64 | 7,110 (52.8%) | 6,050 (85.1%) | 35 | 0.76 (0.72, 0.80) |
| 65–94 | 3,027 (22.5%) | 2,785 (92.0%) | 38 | 0.63 (0.60, 0.67) |
| Race/ethnicity | | | | |
| White, Non-Hispanic | 12,083 (89.8%) | 10,529 (87.1%) | 35 | Ref. |
| Black, Non-Hispanic | 551 (4.1%) | 488 (88.6%) | 33 | 1.13 (1.01, 1.26) |
| Hispanic | 289 (2.1%) | 244 (84.4%) | 34 | 1.00 (0.87, 1.16) |
| Other race/ethnicity[3] | 536 (4.0%) | 461 (86.0%) | 34 | 0.99 (0.89, 1.10) |
| History of seropositivity | | | | |
| Seronegative | 13,315 (98.9%) | 11,590 (87.0%) | 35 | Ref. |
| Previously seropositive[4] | 144 (1.1%) | 132 (91.7%) | 30 | 1.33 (1.07, 1.64) |

[1]Based on results received as of May 18, 2021. 28,571 participants in the serology study reported being vaccinated, 14,220 were excluded because they did not have serology tests both before and after vaccination, and 892 were excluded because their last serology test prior to vaccination was positive, resulting in a total of 13,459 participants included the analysis.

[2]Age data missing for 14 participants (0.1%).

[3]Other race/ethnicity included Asian, American Indian or Alaska Native, Native Hawaiian/Other Pacific Islander, those who identified as Other, and those who did not or did not wish to specify their race.

[4]History of previous positive serologic assay. The last serologic assay prior to vaccination was required to be negative for inclusion in this study.

*Median time to seroconversion (first positive antibody test >4 days after vaccination) was based on Kaplan-Meier curves for each subgroup.

**Hazard ratios were based on a weighted Cox regression model, adjusted for all variables in the model (sex, age, race/ethnicity, prior seropositivity, and healthcare worker status), shown with 95% confidence intervals.