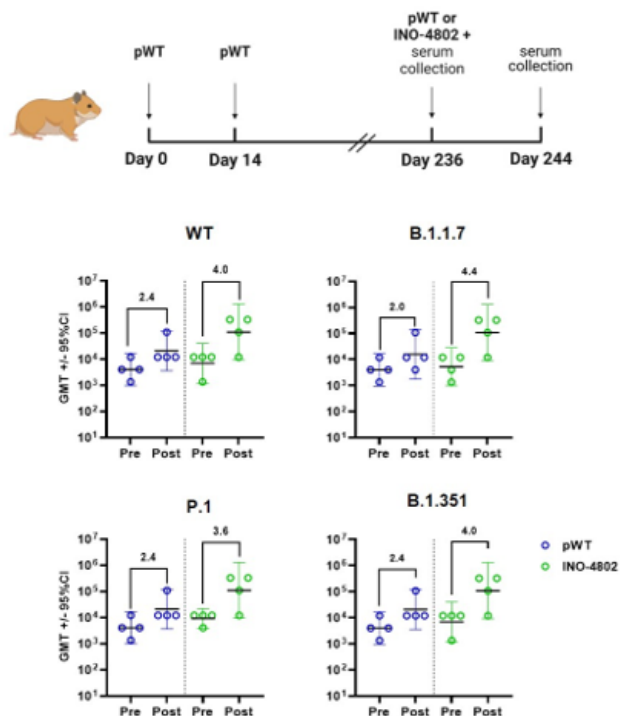Figure 4. Heterologous Boost with INO-4802 Induces Humoral Immune Response Against SARS-CoV-2 Variants

Conclusion. Vaccines matching single VOCs, like pB.1.351 and pWT, elicit responses against the matched antigen but have reduced cross-reactivity. Presenting a pan-SARS-CoV-2 approach, INO-4802 may offer substantial advantages in terms of cross-strain protection, reduced susceptibility to escape mutants and non-restricted geographical use.

Disclosures. Katherine Schultheis, MSc, Inovio Pharmaceuticals (Employee) Charles C. Reed, PhD, Inovio Pharmaceuticals (Employee, Shareholder) Viviane M. Andrade, PhD, Inovio Pharmaceuticals Inc. (Employee) Richa Kalia, MS, Inovio Pharmaceuticals (Employee, Other Financial or Material Support, I have stock options with Inovio Pharmaceuticals as an employee.) Jared Tur, PhD, Inovio (Employee) Blake Schouest, PhD, Inovio Pharmaceuticals (Employee) Dustin Elwood, PhD, Inovio Pharmaceuticals (Employee) Arthur Doan, n/a, Inovio (Employee) Patrick Pezzoli, BS, Inovio (Employee) Dinah Amante, BS, Inovio (Employee) David Weiner, PhD, Inovio (Board Member, Grant/Research Support, Shareholder, I serve on the SAB in addition to the above activities) J Joseph Kim, PhD, Inovio (Employee) Laurent Humeau, PhD, Inovio Pharmaceuticals (Employee) Stephanie Ramos, PhD, Inovio Pharmaceuticals (Employee) Trevor R. F. Smith, PhD, Inovio (Employee, Shareholder) Kate Broderick, PhD, Inovio (Employee).

580. Hesitancy in Uptake and Recommendation of COVID-19 Vaccines by US Healthcare Workers

Steven S. Spires, MD[1]; Rebecca Rayburn-Reeves, PhD[2];
Elizabeth Dodds Ashley, PharmD, MHS[3]; Jenna Clark, PhD[2];
Avani P. Desai, BS[2]; Jan Lindemans, PhD[2]; [1]Duke University School of Medicine, Durham, North Carolina; [2]Duke University, Durham, North Carolina; [3]Duke Center for Antimicrobial Stewardship and Infection Prevention, Durham, NC

Session: P-25. COVID-19 Vaccines

Background. The COVID-19 pandemic has brought vaccination to the forefront of discourse on public health. The rapid speed of COVID-19 vaccine development, utilization of novel technology, and an atmosphere of politicized misinformation have created a perfect storm for vaccine hesitancy. As early adopters of vaccination, HCWs set an example for the general population; as trusted sources of medical information, they educate and inform. However, comparatively little work has investigated HCWs' attitudes toward vaccination and how those attitudes drive their recommendation behavior.

Methods. We surveyed hospital employees about their personal reasons for hesitancy and beliefs about patient hesitancies and randomly assigned them to see one of three messages aimed at increasing vaccine confidence. Message themes included an appeal to return to normal life (Normalcy), a risk comparison between vaccinating or not (SDT), and an explanation of the speed of safe and effective vaccine development (Process).

Results. Of the 674 NC hospital employees who completed our survey in February 2021, 98% had been offered the COVID-19 vaccine, and 80% had already accepted. For the 20% who had not received the vaccine, the top reasons for hesitancy

involved the speed of development and testing, and concerns of vaccine safety and effectiveness. We also found differences in susceptibility to misinformation and vaccine hesitancy across political affiliation, which was higher in Republicans compared to Democrats. HCWs were generally very comfortable recommending the COVID-19 vaccine to patients and supported the idea of sharing the message they read. Although the risk comparison message was most trusted personally, the process message was rated as both the most helpful to patients and the most likely to be shared with them (see Figure 1). This suggests that what is most appealing on a personal level is not necessarily what a HCW would recommend to their patients.

Rating of personal opinions of the passages.
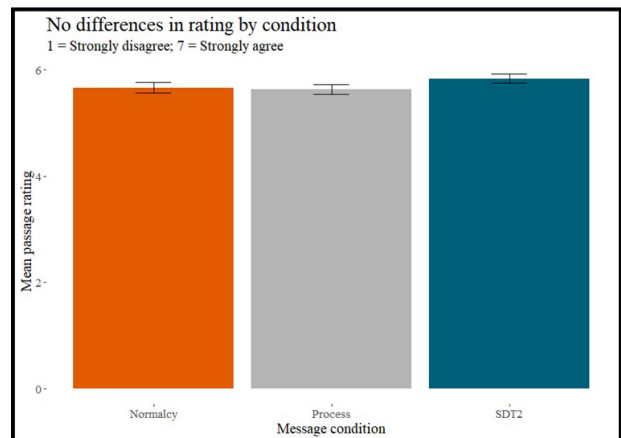
On a scale from 1 to 7 with 1 = Strongly Disagree and 7 = Strongly Agree. This chart shows the average message ratings across the board when answering whether they thought the passages were understandable, helpful, correct, believable, and trustworthy. (Error bars are 95% CI) There was no significant difference across the messages. The Process message is seen as most helpful and is most likely to be shared with patient than the other messages
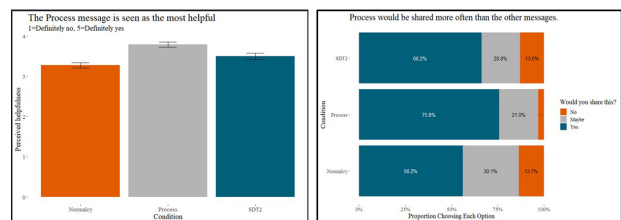
On left, the average answer on a scale from 1 to 5 for "Do you think the passage you just read would help your patients feel more comfortable about getting the vaccine?" and on right, the average answer for "Would you share this passage with your patients?"

Conclusion. HCWs' high uptake and minimal hesitancy in recommending the COVID-19 vaccine is encouraging and merits further exploration for how to increase confidence in HCW who are hesitant to discuss and recommend vaccines to patients, as several highlighted the importance of respecting patient autonomy.

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581. COVID-19 Vaccine Perceptions in Adults from Greater Nashville Tennessee

Kailee N. Fernandez, BS[1]; Danielle A. Rankin, MPH, CIC[1]; Harrison L. Howe, BS[2];
Sean M. Bloos, MPH[2]; Seifein Salib, MD[2]; Rana Talj, MD[2];
Herdi Kurnia. Rahman, Bachelor's Degree[2]; Danya Waqfi, MD[2];
Jessica Villarreal, BS[2]; Ahmad Yanis, MD[2]; Leigh Howard, MD, MPH[2];
James Chappell, MD, PhD[2]; Natasha B. Halasa, MD, MPH[2];
Natasha B. Halasa, MD, MPH[2]; [1]Vanderbilt University Medical Center; Division of Pediatric Infectious Diseases, Nashville, Tennessee; [2]Vanderbilt University Medical Center, Goodlettsville, Tennessee

Session: P-25. COVID-19 Vaccines

Background. In December 2020, SARS-CoV-2 vaccines were made available to healthcare workers and soon thereafter offered to the general public according to age and risk of severe illness. Despite widespread access, vaccination rates vary by region, with Tennessee ranking lower than the national average. Therefore, we aimed to survey adults in greater Nashville, TN regarding SARS-CoV-2 vaccine perceptions.

Methods. We conducted a cross-sectional study of an ongoing longitudinal cohort of individuals with confirmed and/or suspected SARS-CoV-2 infection and their household contacts with enrollment onset in March 2020. For this analysis, individuals were included if they were ≥ 18 years and available for a one-year follow-up visit. At the one-year visit individuals completed a survey about vaccine preferences, beliefs and

risks. Demographic and social characteristics were collected at enrollment. Individuals were considered vaccinated if they had received at least one dose of a SARS-CoV-2 vaccine under FDA emergency use authorization. Vaccine perceptions were compared by SARS-CoV-2-infection and vaccination status using Pearson's chi-squared, alpha=5%.

Results. Between April-May 2021, 115 individuals completed the one-year follow-up. Table 1 includes sociodemographic characteristics of adults, of which the majority were vaccinated and were unemployed or in non-essential occupations. Most individuals agreed the SARS-CoV-2 vaccine can prevent infection and hospitalization (Figure 1A & B). Unvaccinated participants more often agreed that those who contracted SARS-CoV-2 should not receive the vaccine (30%), whereas vaccinated persons less often agreed (11%, p< 0.001) (Figure 1A). Additionally, 44% of unvaccinated individuals were neutral or disagreed that benefits of SARS-CoV-2 vaccination outweighed the illness risk, compared to 10% in the vaccinated group, p=0.001 (Figure 1A). Minimal differences of vaccine perceptions were observed between SARS-CoV-2 positive and negative adults (Figure 1B).

Table 1. Sociodemographic Characteristics of Adults

Characteristics	Total Population N=115
Age—median (IQR)	42 (37-48)
Sex, female—n (%)	61 (53)
Race—n (%)	
White	107 (93)
Black	2 (2)
Other	6 (5)
Ethnicity—n (%)	
Hispanic/Latino	9 (8)
Occupation—n (%)	
Essential[a]	20 (17)
Non-essential/unemployed[b]	95 (83)
Underlying medical condition—n (%)	33 (29)
SARS-CoV-2-positive—n (%)	63 (55)
≥ 1 SARS-CoV-2 vaccine dose—n (%)	85 (74)

[a]Frontline, healthcare, grocery, etc.
[b]Unemployed/work from home

Figure 1. Vaccine perceptions of vaccinated and unvaccinated (A) SARS-CoV-2 positive and SARS-CoV-2 negative (B) adults in greater Nashville, TN. Vaccine perceptions were collected through a standardized survey at the one-year visit.
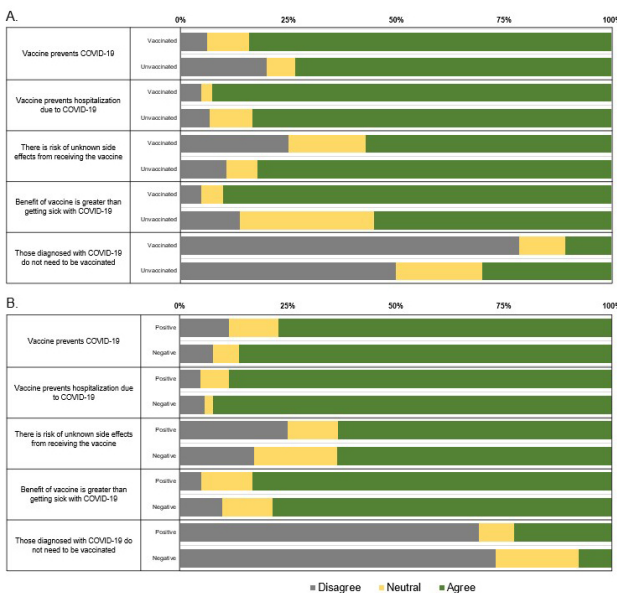
Conclusion. Although some unvaccinated individuals seemingly perceived the SARS-CoV-2 vaccine offered some protection, research should continue to evaluate the implications of vaccine hesitancy on the COVID-19 pandemic response as we prepare for the upcoming respiratory season.

582. Risk Factors for Progression to Hospitalization in Adolescents Presenting with Mild or Moderate COVID-19

Melanie Dubois, MD[1]; Jeffrey Campbell, MD[2]; Gabriella S. Lamb, MD, MPH[2]; Gabriella S. Lamb, MD, MPH[2]; Mari M. Nakamura, MD, MPH[3]; [1]Boston Children's Hospital, Harvard Medical School, Boston, MA; [2]Boston Children's Hospital, Boston, MA; [3]Boston Children's Hospital, Harvard medical school, Jamaica Plain, MA

Session: P-25. COVID-19 Vaccines

Background. Most adolescents (age 12-17 years) with COVID-19 have mild disease. However, certain comorbidities may be risk factors for disease progression, and hospitalization rates for this age group have increased. Adolescents and adults with mild to moderate COVID-19 are eligible for monoclonal antibody therapy. To identify subgroups likely to benefit from this intervention, we evaluated the relationship between comorbidities and need for hospitalization in US adolescents presenting with mild to moderate COVID-19.

Methods. We analyzed presence of comorbidities and need for hospitalization within 28 days of diagnosis for adolescents in the PIDTRAN registry, a multicenter retrospective cohort of US pediatric patients with COVID-19. Comorbidities assessed included obesity, chronic kidney disease (CKD), diabetes (DM), immunosuppressive disease or treatment (IS), sickle cell disease (SCD), congenital/acquired heart disease (CHD), neurologic disease/neurodevelopmental disorders (ND), medical-related technology dependence (MTD), and pulmonary disease requiring daily inhaled corticosteroids (PD). We used multivariable logistic regression to determine race/ethnicity-adjusted associations between comorbidities and hospitalization.

Results. 1574 patients met inclusion criteria, of whom 180 (11.4%) were hospitalized within 28 days of COVID-19 diagnosis. In a race/ethnicity-adjusted model, the following comorbidities were independently associated with increased odds of hospitalization: IS (OR 10.8 [95%CI 5.4 – 21.7]); CKD (OR 5.1 [95%CI 1.0 – 25.6]); DM (OR 4.2 [95%CI 1.7 – 10.6]); SCD (OR 3.4 [95%CI 1.1 – 10.6]). ND (OR 3.0 [95%CI 1.7 – 5.4]); and obesity (OR 2.0 [95%CI 1.1 – 3.9]). Notably, CHD, MTD, and PD were not independently associated with hospitalization. There was no effect modification of race/ethnicity on the association between obesity or DM and hospitalization.

Table 1: Characteristics of adolescents in our cohort

Variable	N=1574
Age, mean years (SD)	15.3 (1.4)
Sex (missing = 2)	
Male	739
Female	833
Other	1
Race	
Asian	37 (2.4%)
American Indian/Alaskan Native	11 (0.7%)
Black	388 (24.7%)
Native Hawaiian/ Other Pacific Islander	4 (0.3%)
White	721 (45.8%)
Unknown	302 (19.2%)
Other	121 (7.7%)
Multiple	9 (0.6%)
Ethnicity	
Not Hispanic/Latino	983 (62.5%)
Hispanic/Latino	333 (21.2%)
Not specified	258 (16.4%)
Baseline comorbidities	
Obesity	88 (5.6%)
CKD	11 (0.7%)
Diabetes	34 (2.2%)
Sickle Cell Disease	18 (1.1%)
Pre-existing heart disease (excluding hypertension)	42 (2.7%)
Neurologic/neurodevelopmental disorders	94 (6.0%)
Technology dependence	5 (0.3%)
Any inhaled corticosteroids	57 (3.6%)
Immunosuppressive disease/medication	58 (3.7%)

Figure 1. Association between comorbidities and hospitalization. Model 1: comorbidities only. Model 2: comorbidities, adjusted for race/ethnicity. Abbreviations: CKD – chronic kidney disease; SCD – sickle cell disease; ICS – inhaled corticosteroids.