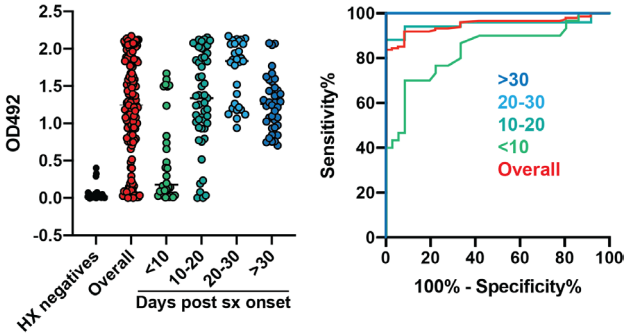
Methods. Blood samples collected for clinical testing and then discarded ("spent samples") were obtained from the clinical laboratory of a medical center in Atlanta. A convenience sample of spent samples from both inpatients (medical/surgical floors, intensive care, obstetrics) and outpatients (clinics and ambulatory surgery) were collected one day per week from January-March 2021. Samples were matched to clinical data from the electronic medical record. In-house single dilution serological assays for SARS-CoV-2 receptor binding domain (RBD) and nucleocapsid (N) antibodies were developed and validated using pre-pandemic and PCR-confirmed COVID-19 patient serum and plasma samples (Figure 1). ELISA optical density (OD) cutoffs for seroconversion were chosen using receiver operating characteristic analysis with areas under the curve for all four assays greater than 0.95 after 14 days post symptom onset. IgG profiles were defined as natural infection (RBD and N positive) or vaccinated (RBD positive, N negative).

Figure 1. Nucleocapsid serology assay validation



Single dilution serological assays for SARS-CoV-2 nucleocapsid antibodies were validated using pre-pandemic and PCR-confirmed COVID-19 patient serum and plasma samples. ELISA optical density (OD) cutoffs for seroconversion were chosen using receiver operating characteristic (ROC) analysis with areas under the curve (AUC) for all four assays greater than 0.95 after 14 days post symptom onset.

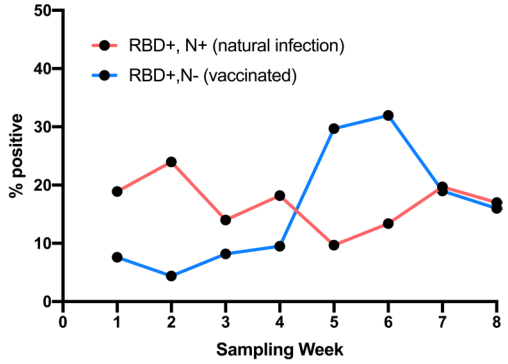
Results. A total of 2406 samples were collected from 2132 unique patients. Median age was 58 years (IQR 40-70), with 766 (36%) ≥ 65 years. The majority were female (1173, 55%), and 1341 (63%) were Black. Median Elixhauser comorbidity index was 5 (IQR 2-9). 210 (9.9%) patients ever had SARS-CoV-2 detected by PCR, and 191 (9.0%) received a COVID-19 vaccine within the health system. Nearly half (1186/2406, 49.3%) of samples were collected from inpatient units, 586 (24.4%) from outpatient labs, 403 (16.8%) from the emergency department, and 231 (9.6%) from infusion centers. Overall, 17.0% had the IgG natural infection profile, while 16.2% had a vaccination profile. Prevalence estimates for IgG due to natural infection ranged from 24.0% in week 2 to 9.7% in week 5, and for IgG due to vaccine from 4.4% in week 2 to 32.0% in week 6 (Table, Figure 2).

Table. SARS-CoV-2 antibody seropositivity by week of sample collection for spent routine blood chemistry samples.

	Week 1 (N=301)	Week 2 (N=338)	Week 3 (N=243)	Week 4 (N=336)	Week 5 (N=371)	Week 6 (N=291)	Week 7 (N=426)	Week 8 (N=100)
IgG RBD	80 (26.7)	96 (28.4)	54 (22.2)	93 (27.7)	146 (39.4)	132 (45.4)	165 (38.7)	33 (33.0)
IgG N	64 (21.3)	140 (41.4)	44 (18.1)	94 (27.98)	38 (10.2)	49 (16.8)	96 (22.5)	23 (23.0)
IgG RBD+, N+	57 (18.9)	81 (23.96)	34 (13.99)	61 (18.2)	36 (9.7)	39 (13.4)	84 (19.7)	17 (17.0)
IgG RBD+, N-	23 (7.6)	15 (4.4)	20 (8.2)	32 (9.5)	110 (29.7)	93 (31.96)	81 (19.0)	16 (16.0)
IgA	68 (22.6)	95 (28.1)	50 (20.6)	80 (23.8)	113 (30.5)	158 (54.3)	158 (37.1)	33 (33.0)
IgM	84 (27.9)	83 (24.6)	52 (21.4)	75 (22.3)	66 (17.8)	142 (48.8)	87 (20.4)	21 (21.0)
Any positive	114 (37.9)	189 (55.9)	91 (37.5)	156 (46.4)	184 (49.6)	222 (76.3)	217 (50.9)	51 (51.0)

RBD = receptor binding domain. N = nucleocapsid. Seropositivity defined by enzyme-linked immunoassay (ELISA) optical density cutoffs selected using receiver operating characteristic analysis with areas under the curve (AUC) for all four assays greater than 0.95 after 14 days post symptom onset. IgG defined as positive if both RBD and N seropositive.

Figure 2. RBD and Nucleocapsid seropositivity to differentiate natural infection vs. vaccination by week of sample collection.



RBD = receptor binding domain. N = nucleocapsid. Seropositivity defined by enzyme-linked immunoassay (ELISA) optical density cutoffs selected using receiver operating characteristic analysis with areas under the curve (AUC) for all four assays greater than 0.95 after 14 days post symptom onset.

Conclusion. Estimated SARS-CoV-2 IgG seroprevalence among patients at a medical center from January-March 2021 was 17% by natural infection, and 16% by vaccination. Weekly trends likely reflect community spread and vaccine uptake.

Disclosures. **Daniel Graciaa, MD, MPH, MSc, Critica, Inc** (Consultant)

372. Detection of SARS-CoV-2 RNAemia in Deceased Tissue Donors

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Background. Tissue donors are evaluated for communicable disease in order to minimize the risk of transmission to recipients. Although there are data suggesting SARS-CoV-2 viremia across a wide spectrum of illness, prevalence in deceased tissue donors and the potential for transplant transmission are unknown.

Methods. Eight tissue banks participated in a retrospective analysis of samples from eligible deceased tissue donors from Oct 2019 through June 2020, one participant in Canada and the remainder located in the United States. All four Census regions of the continental US and all major racial-ethnic groups were represented. EDTA or sodium citrate plasma aliquots were tested in singlicate with the Research Use Only Procleix SARS-CoV-2 Assay on the Procleix Panther System, which uses transcription-mediated nucleic acid amplification (TMA) technology for detection of the SARS-CoV-2 RNA. Plasma (or if unavailable, serum) aliquots were sent to Grifols for an alternate SARS-CoV-2 nucleic acid amplification (NAT) test to verify reactivity and also sent for antibody testing using the emergency use authorization Ortho VITROS Immunodiagnostic Products Anti-SARS-CoV-2 Total test. The VITROS assay uses immunometric technology for qualitative measurement of total antibody (IgG, IgA and IgM) to SARS-CoV-2. The proportion of donors with confirmed RNAemia (i.e., presence of SARS-CoV-2 RNA in plasma or serum) and 95% confidence intervals were computed.

Results. Of 3,455 donor samples with valid final results, 26 (0.76%) were initially positive for SARS-CoV-2 RNA; of these, 3 were confirmed by alternate NAT. Of donor samples collected in 2019 0.00% (95% CI: 0.00%,0.43%) were confirmed RNAemic, while of those collected in 2020, 0.12% (0.04%,0.34%) were confirmed RNAemic. One of 26 initial positive, and none of the three samples confirmed by alternate NAT, tested positive for anti-SARS-CoV-2 Spike antibodies by serology. Infectivity studies are pending on one sample with sufficient available volume.

Conclusion. The rate of SARS-CoV-2 RNAemia in deceased tissue donors is approximately 1 per 1,000, and it is unknown whether this RNAemia reflects the presence of infectious virus. Given these results, the risk of transmission through tissue is most likely to be low.

Disclosures. **Melissa Greenwald, MD**, **Alamo Biologics** (Consultant)**Eurofins VRL Laboratories** (Consultant)**Right Cell Biologics** (Consultant, Consultant Medical Director) **Eduard Grebe, PhD**, **Gilead Sciences** (Consultant)**Sedia Biosciences Corporation** (Consultant, Grant/Research Support)**Vitalant** (Employee) **Alyce Linthurst Jones, PhD**, **LifeNet Health** (Employee) **Matthew Kuehnert, MD**, **American Association of Tissue Banks** (Board Member)**ICCBBA** (Board Member)**Musculoskeletal Transplant Foundation** (Employee)

373. Household transmission of SARS-CoV-2 B.1.1.7 lineage –2 U.S. States, 2021

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Session: P-16. COVID-19 Epidemiology and Screening

Background. In December 2020, B.1.1.7 lineage of SARS-CoV-2 was first detected in the United States and has since become the dominant lineage. Previous investigations involving B.1.1.7 suggested higher rates of transmission relative to non-B.1.1.7 lineages. We conducted a household transmission investigation to determine the secondary infection rates (SIR) of B.1.1.7 and non-B.1.1.7 SARS-CoV-2 lineages.