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390. Can Testing the Environment for SARS-CoV-2 Be a Signal for Staff Infections in Nursing Homes (NHs)?

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

Background. Federal mandate requires NHs to perform weekly COVID-19 testing of staff. Testing is effective due to barriers to disclosing mild illness, but it is unclear how long the mandate will last. We explored if environmental samples can be used to signal staff COVID-19 cases as an alternative screening tool in NHs.

Methods. We conducted a cross sectional study to assess the value of environmental sampling as a trigger for COVID-19 testing of NH staff using data from currently performed weekly staff sweeps. We performed 35 sampling sweeps across 21 NHs from 6/2020-2/2021. For each sweep, we sampled up to 24 high touch objects in NH breakrooms (N=226), entryways (N=216), and nursing stations (N=194) assuming that positive samples were due to contamination from infected staff. Total staff and positive staff counts were tallied for the staff testing sweeps performed the week of and week prior to environmental sampling. Object samples were processed for SARS-CoV-2 using PCR (StepOnePlus) with a 1 copy/mL limit of detection. We evaluated concordance between object and staff positivity using Cohen's kappa and calculated the positive and negative predictive value (PPV, NPV) of environmental sweeps for staff positivity, including the attributable capture of positive staff. We tested the association between the proportion of staff positivity and object contamination by room type in a linear regression model when clustering by NH.

Results. Among 35 environmental sweeps, 49% had SARS-CoV-2 positive objects and 69% had positive staff in the same or prior week. Mean positivity was 16% (range 0-83%) among objects and 4% (range 0-22%) among staff. Overall, NPV was 61% and Cohen's kappa was 0.60. PPV of object sampling as an indicator of positive staff was 100% for every room type, with an attributable capture of positive staff of 76%, with values varying by room type (Table). Breakroom samples were the strongest indicator of any staff cases. Each percent increase in object positivity was associated with an increase in staff positivity in entryways (7.2% increased staff positivity, P=0.01) and nursing stations (5.7% increased staff positivity, P=0.05).

Table. Performance of Environmental Sampling of High-Touch Objects for SARS-CoV-2 as a Mechanism to Detect COVID-19 Infections Among Nursing Home Staff

	All Areas	Breakroom	Entryway	Nursing Station
Positive Predictive Value (PPV)	100%	100%	100%	100%
Negative Predictive Value (NPV)	61%	55%	46%	44%
Attributable Capture of Staff Cases*	76%	68%	51%	53%
2x2 Contingency Table *Staff and Environmental (Env) SARS-CoV-2 Positivity Across 35 Nursing Home Sweeps*	Staff + / - Env + 17 / 0 Env - 7 / 11	Staff + / - Env + 15 / 0 Env - 9 / 11	Staff + / - Env + 11 / 0 Env - 13 / 11	Staff + / - Env + 10 / 0 Env - 14 / 11

We explored if environmental sampling could be used to signal staff COVID-19 cases as an alternative screening tool in nursing homes. If the environment can accurately predict staff infections, then it may offer an efficient, cost-effective way to assess when comprehensive testing of staff should be undertaken, especially when current testing mandates end.
*Attributable capture was calculated as the total number of COVID-19 cases among staff in sweeps where environmental SARS-CoV-2 contamination was detected divided by the total number of staff cases across all sweeps.

Conclusion. If mandatory weekly staff testing ends in NHs, environmental sampling may serve as an effective tool to trigger targeted COVID-19 testing sweeps of NH staff.

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391. Small Towns, Big Cities: Rural and Urban Disparities Among Hospitalized Patients with COVID-19

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

Background. More than half of all hospitals in the U.S. are rural hospitals. Frequently understaffed and resource limited, community hospitals serve a population that tends to be older and have less access to care with increased poverty and medical co-morbidities. There is a lack of data surrounding the impact of COVID-19 among rural minority communities. This study seeks to determine rural and urban disparities among hospitalized individuals with COVID-19.

Methods. This is a descriptive, retrospective analysis of the first 155 adult patients admitted to a tertiary hospital with a positive COVID-19 nasopharyngeal PCR test. Augusta University Medical Center serves the surrounding rural and urban counties of the Central Savannah River Area. Rural and urban categories were determined using patient address and county census data. Demographics, comorbidities, admission data and 30-day outcomes were evaluated.

Results. Of the patients studied, 62 (40%) were from a rural county and 93 (60%) were from an urban county. No difference was found when comparing the number of comorbidities of rural vs urban individuals; however, African Americans had significantly more comorbidities compared to other races (p-value 0.02). In a three-way comparison, race was not found to be significantly different among admission levels of care. Rural patients were more likely to require an escalation in the level of care within 24 hours of admission (p-value 0.02). Of the patients that were discharged or expired at day 30, there were no differences in total hospital length of stay or ICU length of stay between the rural and urban populations.

Baseline Characteristics of Hospitalized Patients with COVID-19

	No. (%)
Total Subjects	155 (100)
Gender	
Male	74 (47.7)
Female	81 (52.3)
Age	
Mean Age (SD)	59.85 (17.9)
Median Age (IQR)	62 (22.5)
18–29	9 (5.8)
30–44	26 (16.8)
45–64	55 (35.5)
65+	65 (41.9)
Race	
African-American	90 (58.8)
White	52 (34.0)
Hispanic	10 (6.5)
Asian	1 (0.7)
County type	
Rural	62 (40.0)
Urban	93 (60.0)

Day 30 Outcomes and Characteristics