Table 3. Examining Preferences for Different Personal Protective Equipment Precautions Signs

Sign Feature	Sign Type	Strongly Agree N (%)	Agree N (%)	Neutral N (%)	Disagree N (%)	Strongly Disagree N (%)
Trustworthy	Routine	171 (37.1)	191 (41.4)	62 (13.4)	18 (3.9)	19 (4.1)
	Health literacy	112 (24.3)	238 (51.6)	85 (18.4)	19 (4.1)	7 (1.5)
	Design firm	149 (32.3)	244 (52.9)	54 (11.7)	8 (1.7)	6 (1.3)
Easy to Follow	Routine	125 (27.1)	244 (52.9)	62 (13.4)	17 (3.7)	13 (2.8)
	Health literacy	128 (27.8)	228 (49.5)	80 (17.4)	22 (4.8)	7 (1.5)
	Design firm	140 (30.4)	244 (52.9)	54 (11.7)	15 (3.3)	8 (1.7)
Informative Content	Routine	126 (27.3)	249 (54.0)	54 (11.7)	23 (5.0)	9 (2.0)
	Health literacy	125 (27.1)	253 (54.9)	68 (14.8)	11 (2.4)	4 (0.9)
	Design firm	157 (34.1)	240 (52.1)	48 (10.4)	11 (2.4)	5 (1.1)
Clear Imagery and Layout	Routine	121 (26.2)	237 (51.4)	74 (16.1)	21 (4.6)	8 (1.7)
	Health literacy	121 (26.2)	235 (51.0)	76 (16.5)	24 (5.2)	5 (1.1)
	Design firm	147 (31.9)	238 (51.6)	60 (13.0)	11 (2.4)	5 (1.1)

N (%) for those encountering signs on patient units was 449 (97.4), 112 (24.3) and 294 (63.8) for Standard, Modified, and Design Firm signs, respectively.

Conclusion. In a convenience sample of hospital staff, most were confident and knowledgeable about PPE use, found PPE signage helpful, and preferred professionally designed signs.

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429. Infection Prevention During Use of a Warm Zone Model in Cohort Patient Care Locations during the COVID-19 Pandemic

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Session: P-19. COVID-19 Infection Prevention

Background. The COVID-19 pandemic required hospitals to care for influxes of patients in cohort locations during critical shortages of personal protective equipment (PPE). Safety zones can be used to protect healthcare workers caring for patients with infectious pathogens. During the COVID-19 pandemic, our hospital developed a Warm Zone model (WZM) to streamline the care of patients with COVID. We established specific areas in our COVID cohort units where staff were permitted to bridge between rooms without doffing gowns, but still doffing gloves and performing hand hygiene between patients. We recognized that a WZM could inadvertently increase risk of nosocomial transmission of pathogens if gowns acted as fomites. For this reason, patients with known infectious pathogens were excluded from the WZM. To measure for unintended harmful consequences of the WZM, our Infection Prevention (IP) department performed surveillance for hospital onset (HO) Clostridioides difficile (CDI), Carbapenem-resistant enterobacteriaceae (CRE) and Methicillin-resistant Staphyloccocus aureus (MRSA) bloodstream infections on units that implemented the WZM.

Methods. Two intensive care units and 3 wards where COVID positive patients were cohorted were included in surveillance. The timeframe for this analysis was 7/1/2020 - 3/31/2021. An electronic surveillance system was used to measure HO infections. The National Healthcare Surveillance Network (NHSN) LabID definitions were used when determining HO CDI and MRSA bloodstream infections (BSI).

Results. During the study period, there were no HO CRE, 1 HO CDI, and 2 HO MRSA BSI in cohort units. There was no evidence to suggest that the HO CDI or HO MRSA BSI were associated with use of a WZM. During this time period, there were 14 cases of community onset (CO) CDI, 2 cases of CO MRSA BSI, and one CO CRE.

Conclusion. During use of a WZM in COVID cohort units, IP did not identify significant increase in HO CDI, CRE, or MRSA BSI compared to non-cohort units. We were limited in our ability to measure acquisition of pathogens because active surveillance screening for colonization was not performed. However, we were able to safely employ a WZM to streamline patient care in COVID cohort areas without evidence of causing nosocomial infections via patient-to-patient transmission.

Disclosures. **All Authors**: No reported disclosures

430. Strategies for Prevention of COVID-19 Transmission in Hospitals

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Session: P-19. COVID-19 Infection Prevention

Background. Infection control measures against the coronavirus disease 2019 (COVID-19) within a hospital often rely on expert experience and intuition due to the lack of clear guidelines. This study surveyed current strategies for the prevention of the spread of COVID-19 in medical institutions.

Methods. Upon systematic review of the guidelines at the national level, 14 key topics were selected. Six hospitals were provided an open survey that assessed their responses to these topics between August 11 and 25, 2020. Using these data, an online questionnaire was developed and sent to the infection control teams of 46 hospitals in South Korea. The survey was conducted between January 31, 2021, and February 20, 2021.

Results. All 46 hospitals responded to the survey, and 24 hospitals (52.2%) had treated 100 or more cases of COVID-19. All hospitals operated screening clinics, and the criteria were respiratory symptoms (100%), fever (97.8%), and epidemiological association (93.5%). It was found that 89.1% (41/46) of hospitals allowed symptomatic patients to visit their general outpatient clinics if fever or respiratory symptoms were not associated with COVID-19. Most hospitals (87.2%; 34/39) conducted polymerase chain reaction (PCR) tests for all hospitalized patients. Moreover, 76.1% (35/46) of hospitals implemented preemptive isolation policies for hospitalized patients, of which 97.1% (34/35) were released from isolation after a single negative PCR test. A little over half of the hospitals (58.7%; 27/46) treated patients that met the national criteria for release from isolation but consistently had positive PCR results. Of these hospitals, 63% (17/27) used N95/KF94 masks, and 40.7% (11/27) used surgical masks without other personal protective equipment for treating them. Most hospitals (76.9%; 20/26) accommodated them in shared rooms when the cycle threshold value of the PCR test was more than a certain value (34.6%; 9/26), or after a certain period that satisfied the national criteria (26.9%; 7/26). Finally, 76.1% (35/46) of hospitals performed emergency procedures or operations on suspected patients.

Table 1. Screening and selective treatment policy to prevent COVID-19 patients from entering the hospital

Table 1. Screening and selective treatment policy to prevent COVID-19 patients from entering the hospital

	Total (n = 46)	No. of COVID-19 cases <100 (n = 22)	No. of COVID-19 cases ≥100 (n = 24)	*P*-value
Existence of screening clinic for COVID-19	46 (100)	22 (100)	24 (100)	-
The criteria of patients that were treated at the screening clinic[1]				
Fever of unknown cause	45 (97.8)	22 (100)	23 (95.8)	1.000
Respiratory symptoms	46 (100)	22 (100)	24 (100)	-
Epidemiological association with COVID-19 patients	43 (93.5)	20 (90.9)	23 (95.8)	0.600
Family members had fever, respiratory symptoms or epidemiological association with COVID-19 patients	35 (76.1)	17 (77.3)	18 (75.0)	0.857
Want to test for COVID-19 voluntarily	39 (84.8)	21 (95.5)	18 (75.0)	0.098
Entry into general outpatient clinics was allowed for patients with fever or respiratory symptoms likely not associated with COVID-19[1]	**41 (89.1)**	**22 (100)**	**19 (79.2)**	**0.050**
No epidemiological association with COVID-19 patients	11/41 (26.8)	5/22 (22.7)	6/19 (31.6)	0.524
Medical staff at the screening clinic determined that the possibility of COVID-19 was minimal	24/41 (58.5)	14/22 (63.6)	10/19 (52.6)	0.476
The patients were negative for COVID-19 testing within a certain period (e.g. two to three days)	38/41 (92.7)	22/22 (100)	16/19 (84.2)	0.091
Scheduled follow-up for diseases presenting fever or respiratory disease	26/41 (63.4)	13/22 (59.1)	13/19 (68.4)	0.536
Performing PCR tests for non-suspected cases of COVID-19[1]	39 (84.8)	20 (90.9)	19 (79.2)	0.418
The subject of testing				
Patients requiring general anesthesia	19/39 (48.7)	9/20 (45.0)	10/19 (52.6)	0.634
All patients requiring hospitalization	34/39 (87.2)	19/20 (95.0)	15/19 (78.9)	0.182
Patients requiring hospitalization in a closed psychiatric ward	9/39 (23.1)	3/20 (15.0)	6/19 (31.6)	0.273
Patients who came from a different institution or a nursing home	16/39 (41.0)	7/20 (35.0)	9/19 (47.4)	0.433
Patients requiring hospitalization in the intensive care unit	9/39 (23.1)	5/20 (25.0)	4/19 (21.1)	1.000
Performing emergency procedures or operations on patients suspected of COVID-19	**35 (76.1)**	**20 (90.9)**	**15 (62.5)**	**0.024**

Note: Values are presented as number (%)

Abbreviations: COVID-19, coronavirus disease 2019; PCR, polymerase chain reaction

[1] This question requested the respondent to select multiple items.

[2] Suspected cases of COVID-19 include fever, respiratory symptoms, and epidemiological associations with COVID-19 patients.

Note. Values are presented as number (%) Abbreviations: COVID-19, coronavirus disease 2019; PCR, polymerase chain reaction 1 This question requested the respondent to select multiple items. 2 Suspected cases of COVID-19 include fever, respiratory symptoms, and epidemiological associations with COVID-19 patients.

Table 2. Preemptive isolation policy for patients with suspected COVID-19 and the policy for patients with COVID-19 whose PCR results are consistently positive but whose symptoms have improved and are cleared from isolation

	Total (n = 46)	No. of COVID-19 cases <100 (n = 22)	No. of COVID-19 cases ≥100 (n = 24)	*P*-value
Existence of preemptive isolation policy for patients with suspected COVID-19	**35 (76.1)**	**21 (95.5)**	**14 (58.3)**	**0.003**
The criteria for removing the patients from preemptive isolation[1]				
COVID-19 PCR test confirmed negative once	34/35 (97.1)	21/21 (100)	13/14 (92.9)	0.400
COVID-19 PCR test confirmed negative twice	3/35 (8.6)	3/21 (14.3)	0/14 (0)	0.259
After 10–14 days of symptom onset, exposure to COVID-19, or suspicion of exposure, regardless of the PCR test results	2/35 (5.7)	0/21 (0)	2/14 (14.3)	0.153
Determined by medical staff belonging to specific departments[2]	10/35 (28.6)	5/21 (23.8)	5/14 (35.7)	0.474
Existence of policy for patients with COVID-19 whose PCR results are consistently positive but whose symptoms have improved and are cleared from isolation	27 (58.7)	13 (59.1)	14 (58.3)	0.958
Personal protective equipment for the treatment of the patients[1]				
Coveralls with PAPR	0/27 (0)	0/13 (0)	0/14 (0)	-
Coveralls with N95/KF94 mask	0/27 (0)	0/13 (0)	0/14 (0)	-
N95/KF94 mask + disposable gown + gloves + goggles/face shields+ hair cover + shoe covers	0/27 (0)	0/13 (0)	0/14 (0)	-
N95/KF94 mask + disposable gown + gloves + goggles/face shields+ hair cover	2/27 (7.4)	1/13 (7.7)	1/14 (7.1)	1.000
N95/KF94 mask + disposable gown + gloves + goggles/face shields	3/27 (11.1)	3/13 (23.1)	0/14 (0)	0.098
N95/KF94 mask + disposable gown + gloves	4/27 (14.8)	2/13 (15.4)	2/14 (14.3)	1.000
N95/KF94 mask + gloves	4/27 (14.8)	2/13 (15.4)	2/14 (14.3)	1.000
N95/KF94 mask	17/27 (63.0)	7/13 (53.8)	10/14 (71.4)	0.440
Surgical mask	**11/27 (40.7)**	**2/13 (15.4)**	**9/14 (64.3)**	**0.010**
Allocation of hospital room[1,3]				
Shared room in a general ward	20/26 (76.9)	8/13 (61.5)	12/13 (92.3)	0.160
Regardless of the PCR test results (Ct valne) or the time of release from isolation	5/26 (19.2)	1/13 (7.7)	4/13 (30.8)	0.322
If PCR test results (Ct value) meet certain criteria	9/26 (34.6)	5/13 (38.5)	4/13 (30.8)	1.000
After a certain period from the time of release from isolation, regardless of the PCR test results (Ct value)	7/26 (26.9)	3/13 (23.1)	4/13 (30.8)	1.000

Note: Values are presented as number (%)

Abbreviations: COVID-19, coronavirus disease 2019; PCR, polymerase chain reaction; PAPR, powered air-purifying respirator; Ct, cycle threshold

[1] This question requested the respondent to select multiple items.

[2] It includes infectious diseases, pulmonology, and the infection control and prevention office.

[3] One hospital that wrote a non-categorical answer for the question was excluded. The hospital made a decision after discussing it with an infectious diseases specialist.

Note. Values are presented as number (%) Abbreviations: COVID-19, coronavirus disease 2019; PCR, polymerase chain reaction; PAPR, powered air-purifying respirator; Ct, cycle threshold 1 This question requested the respondent to select multiple items. 2 It includes infectious diseases, pulmonology, and the infection control and prevention office. 3 One hospital that wrote a non-categorical answer for the question was excluded. The hospital made a decision after discussing it with an infectious diseases specialist.

Conclusion. Various guidelines were being applied by each medical institution, but there was a lack of an explicit set of national guidelines to support them.

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431. SARS-CoV-2 Environmental Contamination in Hospitalized COVID-19 Patients' Rooms

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CDC Prevention Epicenters Program

Session: P-19. COVID-19 Infection Prevention

Background. The correlation between SARS-CoV-2 RNA and infectious viral contamination of the hospital environment is poorly understood.

Methods. housed in a dedicated COVID-19 unit at an academic medical center. Environmental samples were taken within 24 hours of the first positive SARS-CoV-2 test (day 1) and again on days 3, 6, 10 and 14. Patients were excluded if samples were not obtained on days 1 and 3. Surface samples were obtained with flocked swabs pre-moistened with viral transport media from seven locations inside (bedrail, sink, medical prep area, room computer, exit door handle) and outside the room (nursing station computer). RNA extractions and RT-PCR were completed on all samples. RT-PCR positive samples were used to inoculate Vero E6 cells for 7 days and monitored for cytopathic effect (CPE). If CPE was observed, RT-PCR was used to confirm the presence of SARS-CoV-2.

Results. We enrolled 14 patients (Table 1, Patient Characteristics) between October 2020 and May 2021. A total of 243 individual samples were obtained – 97 on day 1, 98 on day 3, 34 on day 6, and 14 on day 10. Overall, 18 (7.4%) samples were positive via RT-PCR – 9 from bedrails (12.9%), 4 from sinks (11.4%), 4 from room computers (11.4%) and 1 from the exit door handle (2.9%). Notably, all medical prep and nursing station computer samples were negative (Figure 1). Of the 18 positive samples, 5 were from day 1, 10 on day 3, 1 on day 6 and 2 on day 10. Only one sample, obtained from the bedrails of a symptomatic patient with diarrhea and a fever on day 3, was culture-positive (Figure 2).

Table 1. Patient Characteristics

	Total (%) n=14
Age, years (IQR)	60 (40-70)
Female	8 (57)
Hospital Length of Stay, days (IQR)	6 (3-11)
Room Length of Stay, days (IQR)	6 (2-10)
Prior Room Occupant COVID-19 Positive	10 (83)
On Supplemental Oxygen	9 (64)
Ventilator	0 (0)
Bipap	0 (0)
Facemask	0 (0)
Nasal O2	9 (64)
None	5 (36)
Aerosol-generating procedure	2 (14)
Nebulizer	2 (14)
Intubation	0 (0)
Bronchoscopy	0 (0)
Other procedure	0 (0)
Patient Wearing Facemask in Room	0 (0)
Providers Wearing Respirator in Room	13 (93)
Symptomatic	5 (36)
Fever	5 (36)
Cough	5 (36)
SOB	5 (36)
Diarrhea	5 (36)
Bedridden	0 (0)
Stool incontinent	0 (0)
Urine Incontinent	1 (7)

Figure 1. Proportion of RT-PCR Positive Samples by Sample Day and Location

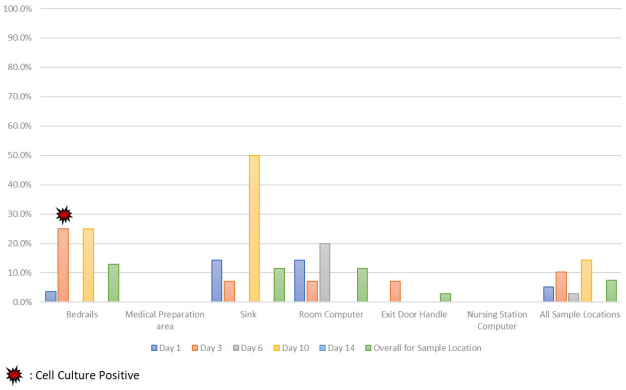
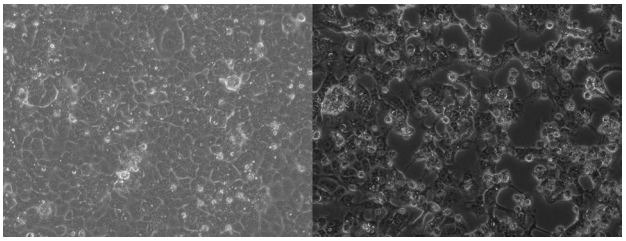


Figure 2. Cell cultures of negative control (left) and CPE positive sample (right)



Conclusion. Overall, the amount of environmental contamination of viable SARS-CoV-2 virus in rooms housing COVID-19 infected patients was low. As expected, more samples were considered contaminated via RT-PCR compared to cell culture, supporting the conclusion that the discovery of genetic material in the environment is not an indicator of contamination with live infectious virus. More studies including RT-PCR and viral cell culture assays are needed to determine the significance of discovering SARS-CoV-2 RNA versus infectious virus in the clinical environment.

Disclosures. **David J. Weber, MD, MPH**, **PDI** (Consultant)