

information and translating early findings to identify and subsequently improve disparities within HAIs.

Funding: None

Disclosures: None

Antimicrobial Stewardship & Healthcare Epidemiology 2022;2(Suppl. S1):s82-s83 doi:10.1017/ash.2022.212

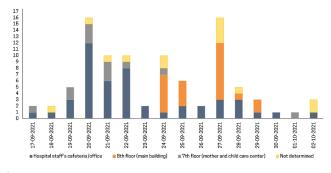
#### **Presentation Type:**

Poster Presentation - Oral Presentation Subject Category: Outbreaks

# A SARS-CoV-2 outbreak due to vaccine breakthrough in an acute-care hospital

Se Yoon Park; Tae Hyong Kim; Eunjung Lee; Mark Loeb; Yeon Su Jeong; Jin Hwa Kim; Sun Mi Oh; Sojin Cheong; Hyein Park and SoYea Jo

**Background:** The  $\delta$  (delta) variant has spread rapidly worldwide and has become the predominant strain of SARS-CoV-2. We analyzed an outbreak caused by a vaccine breakthrough infection in a hospital with an active infection control program where 91.9% of healthcare workers were vaccinated. Methods: We investigated a SARS-CoV-2 outbreak between September 9 and October 2, 2021, in a referral teaching hospital in Korea. We retrospectively collected data on demographics, vaccination history, transmission, and clinical features of confirmed COVID-19 in patients, healthcare workers, and caregivers. Results: During the outbreak, 94 individuals tested positive for SARS-CoV-2 using reverse transcriptionpolymerase chain reaction (rtPCR) testing. Testing identified infections in 61 health care workers, 18 patients, and 15 caregivers, and 70 (74.5%) of 94 cases were vaccine breakthrough infections. We detected 3 superspreading events: in the hospital staff cafeteria and offices (n = 47 cases, 50%), the 8th floor of the main building (n = 22 cases, 23.4%), and the 7th floor in the maternal and child healthcare center (n = 12 cases, 12.8%). These superspreading events accounted for 81 (86.2%) of 94 transmissions (Fig. 1, 2). The median interval between completion of vaccination and COVID-19 infection was 117 days (range, 18-187). There was no significant difference in the mean Ct value of the RdRp/ORF1ab gene between fully vaccinated individuals (mean 20.87, SD±6.28) and unvaccinated individuals (mean 19.94, SD±5.37, P = .52) at the time of diagnosis. Among healthcare





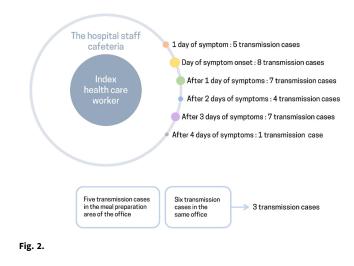


Table 1. Clinical course and outcome of the study participants

	Health care workers (n=61)	Patients (n=18)	Caregivers (n=15)	P value
Place of isolation				< 0.001
Community treatment center	52 (85.2)	0	9 (60.0)	
Hospital	6 (9.8)	18 (100.0)	6 (40.0)	
Home	3 (4.9)	0	0	
Duration of hospitalization/isolation, days	9 (8-10)	13 (9-19)	9 (6-11)	0.01
Clinical course				< 0.001
Not hospitalized, no limitations of activities	53 (86.9)	0	9 (60.0)	
Not hospitalized, limitation of activities	1 (1.6)	0	0	
Hospitalized, not requiring supplemental oxygen	6 (9.8)	7 (36.8)	6 (40.0)	
Hospitalized, requiring any supplemental oxygen	1 (1.6)	6 (33.3)	0	
Hospitalized, requiring noninvasive ventilation or	0	1 (5.6)	0	
HFNC				
Hospitalized, receiving invasive MV or ECMO	0	0	0	
In hospital mortality	0	4 (22.2)	0	0.001

workers and caregivers, only 1 required oxygen supplementation. In contrast, among 18 patients, there were 4 fatal cases (22.2%), 3 of whom were unvaccinated (Table 1). **Conclusions:** Superspreading infection among fully vaccinated individuals occurred in an acute-care hospital while the  $\delta$  (delta) variant was dominant. Given the potential for severe complications, as this outbreak demonstrated, preventive measures including adequate ventilation should be emphasized to minimize transmission in hospitals.

Funding: None

Disclosures: None

Antimicrobial Stewardship & Healthcare Epidemiology 2022;2(Suppl. S1):s83 doi:10.1017/ash.2022.213

#### Presentation Type:

Poster Presentation - Oral Presentation Subject Category: Outbreaks

Nosocomial outbreak of  $\delta$  (delta) variant SARS-CoV-2 on a liver transplant unit: A complex epidemiologic and genomic investigation Jonathan Ryder; Trevor Van Schooneveld; Baha Abdalhamid; Macy Wood;

Richard Starlin; Gayle Gillett; Teresa Balfour; Libby Pflueger and Mark Rupp

**Background:** In late September 2021, a cluster of patients with nosocomial COVID-19 was identified on a liver transplant unit at University of Nebraska Medical Center. **Methods:** The outbreak investigation included contact tracing via patient chart and employee health record reviews and serial prevalence testing for SARS-CoV-2 among potentially exposed patients and healthcare workers (HCWs). Routine admission and preprocedural screening for SARS-CoV-2 was performed, and involved patients had negative admission screening results with positive SARS-CoV-2 tests >5 days from admission. Mitigation strategies involved reinforcement of patient care and visitation procedures. Whole-genome sequencing of positive SARS-CoV-2 specimens was conducted. **Results:** The potential outbreak cluster included 6 patients in the same quadrant of the liver transplant unit, 1 visitor, and 11 healthcare workers (Fig. 1). Moreover,

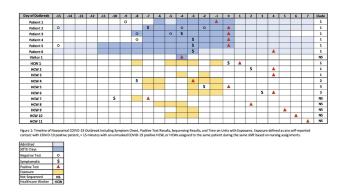
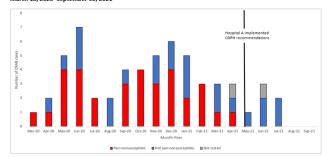


Figure 1. Carbapenem-resistant Acinetobacter baumanii cases at Hospital A by susceptibility during March 18, 2020–September 30, 2021



4 patients had severe liver disease, including 2 with liver transplants. All HCWs and half of the patients had received 2 doses of mRNA vaccine, albeit >5 months from their second vaccination. Whole-genome sequencing confirmed patients 1-6 and HCWs 1-3 had related transmission of COVID-19. However, infections in HCWs 4-6, who worked in a transplant-related office setting without patient contact, were due to 2 separate introductions of SARS-CoV-2 unrelated to the hospital outbreak. Sequencing could not be performed on HCWs 7-11 due to low viral concentration in the original specimens or unavailable specimen. The SARS-CoV-2  $\delta$  (delta) variant (B.1.617.2) was identified in all sequenced samples. HCWs 8-10 were asymptomatic and had had contact with each other and had been involved with an intubation without proper PPE for SARS-CoV-2 on patient 6. HCW 8 had had contact with all 6 patients and HCW 9 had had contact with 5 patients. A clear index case could not be identified; however, we suspect that the index case was either visitor 1, who tested positive during patient 2's admission, or an asymptomatic healthcare worker (HCWs 8-10). Conclusions: We identified a nosocomial outbreak of the SARS-CoV-2  $\delta$  (delta) variant in a solid-organ transplant unit including patients, a visitor, and vaccinated healthcare workers with multiple introductions of the virus. Further transmission was not detected after enhanced infection control measures were introduced, including universal masking and eye protection, closing patient doors, and enforcement of visitor masking policy. We describe the difficulties tracing SARS-CoV-2 transmission in the hospital setting, even with advanced sequencing techniques. This outbreak highlights the importance of booster vaccination and strict infection control practices, especially in the setting of the  $\delta$  (delta) variant.

Funding: None Disclosures: None

Antimicrobial Stewardship & Healthcare Epidemiology 2022;2(Suppl. S1):s83-s84

doi:10.1017/ash.2022.214

#### Presentation Type:

Poster Presentation - Oral Presentation Subject Category: Outbreaks

### Outbreak investigation of CRAB at an acute-care hospital ICU during the COVID-19 pandemic—Chicago, Illinois, March 2020– September 2021

Hira Adil; Kelly Walblay; Shelby Daniel-Wayman; Massimo Pacilli; Shannon Xydis; Christine Pate; Ann Valley and Stephanie Black

**Background:** Carbapenem-resistant *Acinetobacter baumannii* (CRAB) is primarily associated with hospital-acquired infections and is an urgent public health threat due to its ability to contaminate the environment and cause severe disease. In 2019, Illinois began pilot surveillance for CRAB requiring select laboratories to submit specimens for molecular characterization. On July 17, 2020, the Chicago Department of Public Health (CDPH) was notified of an increase in CRAB infections in a 20bed ICU at an acute-care hospital in Chicago (hospital A) during the initial COVID-19 surge. We summarize the outbreak investigation findings and infection control recommendations. **Methods:** Clinical cultures were

\$84 2022;2 Suppl 1

collected from patients in hospital A, and CRAB-positive isolates were sent to the Wisconsin State Laboratory of Hygiene for mechanism of resistance and antibiotic susceptibility testing. On-site assessments and remote follow-ups were conducted by CDPH infection preventionists to evaluate infection control practices including environmental cleaning, hand hygiene compliance, and use of personal protective equipment (PPE). The Illinois Department of Public Health and CDPH summarized the testing results, facilitated a containment response, and provided recommendations for infection control. Results: From March 18, 2020, to September 30, 2021, 56 patients with CRAB infections were identified from hospital A, and 33 (59%) of these cases were pan-nonsusceptible. Most specimen sources were sputum (n = 30, 54%), followed by blood (n = 13, 23%), urine (n = 6, 11%) and other (n = 7, 13%). Among isolates with mechanism testing (n = 54), 45 (83%) were positive for OXA-24/40 and 9 (17%) were positive for OXA-23. Of the CRAB-positive patients, 28 (50%) were previously positive for SARS-CoV-2. To date, 25 of these patients (45%) have been discharged and 31 (55%) have died. Two onsite visits and 7 remote-assistance sessions were conducted as part of the investigation. In response to increased COVID-19 hospitalizations, hospital A moved to crisis-capacity PPE use and encountered staffing shortages, which led to compromised infection control measures. Cleaning agents (Quat disinfectant cleaner) were also found to be ineffective against CRAB and required long contact times. Conclusions: In response to the CRAB outbreak at hospital A, CDPH recommended that the hospital stop crisis-capacity protocols for PPE, conduct admission screening and pointprevalence testing for CRAB, implement a hand hygiene campaign, and use an EPA-registered List K product for environmental cleaning. These recommendations were implemented in May 2021, and no CRAB cases have been reported since July 2021. To reduce CRAB transmission during the pandemic, facility leadership must commit resources to educate staff on effective infection control practices including conventional use of PPE, appropriate cleaning agents, and improved hand hygiene. Funding: None

Disclosures: None

Antimicrobial Stewardship & Healthcare Epidemiology 2022;2(Suppl. S1):s84 doi:10.1017/ash.2022.215

## Presentation Type:

Poster Presentation - Oral Presentation

Subject Category: Patient Safety

Racial disparities in rate of central-line-associated bloodstream infections and catheter-associated urinary tract infections

Erin Gettler; Jessica Seidelman; Jay Krishnan; Naseem Alavian; Ibukun Kalu; Melissa Campbell; Sarah Lewis; Deverick Anderson and Becky Smith

**Background:** Racial and ethnic disparities in healthcare access, medical treatment, and outcomes have been extensively reported. However, the impact of racial and ethnic differences in patient safety, including healthcare-associated infections, has not been well described. **Methods:** We performed a retrospective review analyzing prospectively collected data on central-line-associated bloodstream infection (CLABSI) and