

Indonesia, were infected with SARS-CoV-2 in June–August 2021, during the second wave of the COVID-19 pandemic. Much evidence has shown that SARS-CoV-2 persists on hospital environmental surfaces and medical equipment. We investigated the potential sources of virus in our cases, particularly environmental contamination. **Methods:** Environmental screening for SARS-CoV-2 was conducted using RT-PCR of swabs collected from case-related medical equipment and hospital surfaces. We examined the environmental cleaning method in these areas as well. **Results:** We swabbed medical equipment in close contact with patient droplets such as the ventilator, the high-flow nasal cannula, the nebulizer, and suction equipment, as well as some environmental surfaces near the patient, such as the bed rail, air conditioning unit, and portable HEPA-filter outlet. Among 19 samples, genetic material of SARS-CoV-2 was detected only on a sample from a nebulizer. The point of contamination was on the outer body of that nebulizer, which indicated that the contact transmission source might be from patient droplets and/or inadequate cleaning. No more positive results emerged from our screening, indicating that the environmental cleaning was adequate. The IPC team recommended that we no longer use nebulizers for COVID-19 patients and that the cleaning procedure be improved, particularly after the device is used. **Conclusions:** Environmental screening for SARS-CoV-2 can be used to support investigations of inpatient COVID-19 outbreaks in hospitals. Adequate cleaning and care procedures for medical equipment are very important in preventing the transmission of SARS-CoV-2 in the hospital setting.

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S1):s7–s8
doi:10.1017/ash.2023.24

Subject Category: COVID-19

Abstract Number: SG-APSID1178

Factors influencing COVID-19 prevention practices among healthcare personnel in Rajavithi Hospital

Kampong Kamnon, Rajavithi Hospital, Bangkok, Thailand and Daranee Sornsuan, Rajavithi Hospital, Bangkok, Thailand

Objectives: To determine the factors influencing COVID-19 prevention practices among healthcare personnel. **Methods:** The sample consisted of healthcare personnel working in the emergency department, inpatient wards, and the outpatient department in 250 Rajavithi hospitals selected using a purposive sampling method. Data were collected using questionnaires that were validated by 5 experts and had a content validity index of 0.83. The reliability of the questionnaires was 0.91. Data were analyzed using descriptive statistics and multiple regression. **Results:** Study participants had good attitudes toward behaviors, subjective norms, perceived behavioral control, and intention to prevent COVID-19. In addition, perceived behavioral control was the only factor that statistically predicted intention to perform COVID-19 infection prevention and may explain 25.6% of the variability of intention ($P < .001$). **Conclusions:** Based on the results of this study, relevant authorities, including wards and infection control units, should support perceived behavioral control among registered nurses to encourage COVID-19 prevention practices.

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S1):s8
doi:10.1017/ash.2023.25

Subject Category: COVID-19

Abstract Number: SG-APSID1027

COVID-19 vaccination strategy in Singapore—Perspectives and lessons from primary care

Sky Wei Chee Koh, National University Polyclinics, Singapore; Victor Loh Weng Keong, Yong Loo Lin School of Medicine, Singapore; Liow Yiyang, National University Polyclinics, Singapore; Leong Choon Kit, Yong Loo Lin School of Medicine, Singapore; Doris Young, Yong Loo Lin School of Medicine, Singapore

Objectives: The disruptions wrought by COVID-19 have spurred the development of vaccines at a pace unprecedented in global history. We have witnessed vaccine development from in vivo testing to population-wide implementation in just under 1 year. Singapore’s vaccination rate of 80%,

attained at the start of September 2021, marks a milestone. It signals that plans to shift from a “zero transmission” approach to an endemic “living with COVID-19” approach is headed in the right direction, albeit cautiously and with some uncertainty. Although we ask ourselves at what rate our society should be reopened, we acknowledge that such questions are not easily answered because newer variants are proving more transmissible and, possibly, vaccine resistant compared to earlier variants. **Methods:** COVID-19 vaccination milestones were plotted. A timeline was used to map key events of Singapore’s vaccination strategy in terms of legislation, logistics and operations, vaccination eligibility, vaccination sites, and measures implemented to encourage vaccine uptake. These factors were compared with Singapore’s vaccination rate from December 2020 to early September 2021. **Results:** The successful vaccination strategy in Singapore has been explored in 4 main areas: good leadership and evidence-based decision making, use of communications, utilizing existing logistics, and an ever-ready primary care. **Conclusions:** As we transition to our second year of combating COVID-19, emerging variants, spread despite vaccination, and the contesting voices of antivaxxers pose new challenges. Vaccine-generated immunity is only one, albeit an important, element of a comprehensive COVID-19 strategy. The strategy must also entail surveillance, self-testing, contact tracing, quarantine, legislation, financial support, and strengthened social responsibility. As providers of vaccination and translators of upstream evidence and policy decisions in the community, primary care providers should be involved early in decision making regarding interventions in the community because they can foresee challenges on the ground. Let us put our continued trust in primary care providers to contribute to making Singapore a COVID-19–resilient nation.

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S1):s8
doi:10.1017/ash.2023.26

Subject Category: COVID-19

Abstract Number: SG-APSID1116

Assessing COVID-19 symptoms in infected healthcare workers in Vietnam

Dinh Thi Thu Huong, National Hospital for Tropical Diseases, Hanoi, Vietnam; Le Nguyen Minh Hoa, National Hospital for Tropical Diseases, Hanoi, Vietnam; Bui Thi Thuy, National Hospital for Tropical Diseases, Hanoi, Vietnam; Nguyen Van Kinh, National Hospital for Tropical Diseases, Hanoi, Vietnam; Pham Ngoc Thach, National Hospital for Tropical Diseases, Hanoi, Vietnam

Objectives: In early 2021, when the COVID-19 vaccine was scarce in Vietnam, healthcare workers (HCWs) were prioritized for vaccination due to high risk of occupational exposure. However, there is some COVID-19 vaccine hesitancy within HCW communities. Assessing COVID-19 severity among vaccinated and nonvaccinated HCWs would contribute essential information to assure people of vaccine effectiveness and reduce vaccine hesitancy. **Methods:** We conducted a descriptive cross-sectional study at the National Hospital for Tropical Diseases in Hanoi, Vietnam, from May to June 2021. Clinical and epidemiological data from HCWs with positive polymerase chain reaction (PCR) results were collected. The severity of symptoms were classified according to Vietnam Ministry of Health guideline (Decision no. 3416 issued July 14, 2021) into 5 categories: asymptomatic, mild, moderate, severe, and critical conditions. **Results:** Overall, 25 HCWs qualified for this study (14 women and 11 men), with a median age of 31 years. Among them, 3 HCWs were infected due to community exposure, and the rest were infected due to occupational exposure. Also, 3 HCWs received the Astra Zeneca vaccine before being infected with SARS-CoV-2 (one fully vaccinated with 2 doses and the other 2 had the first dose). Categorized by the severity of infection, 28% were asymptomatic, 44% had mild symptoms, 20% had moderate symptoms, and 8% experienced severe symptoms. All 3 vaccinated HCWs showed only mild symptoms. Cough and sore throat were the main symptoms recorded (60%), followed by fever (56%). Blood test results did not show significant differences between the severe and mild COVID-19 groups. **Conclusions:** COVID-19 vaccination reduced the severity of COVID-19 in this small sample of HCWs. Full

COVID-19 vaccination is strongly recommended for HCWs to reduce the spread of COVID-19 and to limit the number of cases with severe disease.

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S1):s8–s9
doi:10.1017/ash.2023.27

Subject Category: COVID-19

Abstract Number: SG-APUSIC1200

Infection prevention control along the fast track: Supporting the construction, operation, and closure of a COVID-19 community treatment facility in an F1 Pit

Wee Ling Tee, National University Hospital, Singapore; Somani Jyoti, Singapore National University Hospital, Singapore; Razali Bin Mahdi, Singapore National University Hospital, Singapore; Cathrine Teo, Singapore National University Hospital, Singapore

Objectives: The infection prevention team (IPT) was tasked with providing technical guidance for the construction and setup of a community treatment facility in 3 weeks at a Formula 1 (F1) racing pit to house elderly SARS-CoV-2-positive cases. **Methods:** The facility was setup with 737 beds including an isolation unit and a resuscitation bay. The multidisciplinary team decided on zone segregation (ie, green and hot zones) and discussed the clean-dirty workflow. IPC measures were revisited, especially regarding the layout of the donning and doffing station, as the facility expanded to accommodate patients with more comorbidities and those who needed dialysis. IPC training for nominated infection control liaison officers (ICLOs) was conducted using a “train the trainer” approach for mask fitting, hand hygiene, donning and doffing of personal protective equipment (PPE). Enhanced IPC measures, including weekly audit and staff surveillance, were mandatory, and monitoring was performed according to MOH guidelines. Linen and waste management and the cleaning and disinfection process were established at the beginning of the project. **Results:** Construction was completed within 3 weeks. The setup was completed in November 2021 for 737 beds. There were 758 admissions during the 4-month operation. In total, 12 trained ICLOs oversaw the training of 200 healthcare workers. They conducted 12 IPC audits and provided feedback to all staff. Compliance with PPE practices was inconsistent, and findings were shared during daily after-action reviews for improvement. The greatest challenges were converting the F1 facility to a healthcare facility, training staff with no IPC knowledge, and monitoring IPC on the ground. The trained ICLOs were successful in implementing, practicing, and monitoring IPC measures with minimal assistance from the infection prevention team. **Conclusions:** Operation began on November 5, 2021, and ceased on March 9, 2022. The community treatment facility construction, setup, and operations were completed within a short timeframe due to the efforts of various stakeholders. We faced many challenges, but we managed to implement and uphold IPC standards from beginning to end.

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S1):s9
doi:10.1017/ash.2023.28

Subject Category: COVID-19

Abstract Number: SG-APUSIC1172

Mitigating the problems that arose in a ward with COVID-19 cases: Development of a “hot ward” tool kit for a potential COVID-19 outbreak

Razali Mahdi, National University Hospital, Singapore; Somani Jyoti, National University Hospital, Singapore; Revathi Sridhar, National University Hospital, Singapore

Objectives: COVID-19 cases continue to climb in the community from the SARS-CoV-2 δ (delta) variant wave. To prepare for cases that may be nosocomial or detected late, the infection prevention team constructed a ‘hot ward’ tool kit to guide implementation of infection control measures. **Methods:** We engaged the NUH Facilities Management ventilation engineers to understand every ward’s mechanical ventilation setup. With this information, we created of “green” and “hot” zones within ward. After conducting assessments on individual wards, we created the “hot ward” tool kit: (1) 38 ward floor plans indicating ventilation setup, “green” zones, and

“hot” zones; (2) a risk matrix to guide ward actions based on cycle threshold (Ct) value and duration of exposure; and (3) “hot ward” checklists. The tool kit was presented to infectious disease clinicians on the infection prevention team and senior nursing leaders for input and guidance. To ensure that these plans were practical, we conducted numerous site walks with HOD and ward nurse managers (ie, for the ICUs and psychiatric units). Finally, the tool kit was shared in a meeting with key stakeholders and senior leaders. It was also uploaded to the NUH COVID-19 quick-reference intranet page for easy staff access. **Results:** The tool kit was used by 2 general wards when cases of confirmed COVID-19 were detected among patients. Overall, the tool kit helped HOD and nurse managers with the immediate actions required and it provides useful guidance for the infection prevention team to assess and guide decisions regarding whether a ward lockdown is necessary. **Conclusions:** Although the guidance was useful, from the site walk we learned that the mechanical ventilation system of some wards is shared, making it challenging to prevent cross contamination between wards because any shared ventilation between unmasked areas can be pose a risk for both patients and staff. Additional measures were instituted to mitigate this risk.

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S1):s9
doi:10.1017/ash.2023.29

Subject Category: Device-associated infections

Abstract Number: SG-APUSIC1088

Two-stage primary total knee arthroplasty for evolutive infected arthritis with coexistent joint destruction

Wonchul Choi, CHA Bundang Medical Center, CHA University School of Medicine, Seongnam-si, Republic of Korea; Hyuk-Soo Han, Department of Orthopaedic Surgery, Seoul National University Hospital, Seoul National University College of Medicine, Seoul, Republic of Korea; Tae-Woo Kim, Department of Orthopedic Surgery, Seoul National University Boramae Medical Center, Seoul National University College of Medicine, Seoul, Republic of Korea; Moon Jong Chang, Department of Orthopedic Surgery, Seoul National University Boramae Medical Center, Seoul National University College of Medicine, Seoul, Republic of Korea; Joong Il Kim, Department of Orthopaedic Surgery, Hallym University Kangnam Sacred Heart Hospital, Seoul, Republic of Korea; Du Hyun Ro, Department of Orthopaedic Surgery, Seoul National University Hospital, Seoul National University College of Medicine, Seoul, Republic of Korea

Objectives: The treatment of infected knee arthritis in patients with coexisting joint destruction, including superimposed advanced arthritis or chronic osteomyelitis, is challenging. We investigated the outcomes of 2-stage primary total knee arthroplasty (TKA) for evolutive infected arthritis with coexistent joint destruction. **Methods:** We retrospectively reviewed the cases of 50 patients from 5 hospitals who presented with infected arthritis of the knee and were treated with 2-stage TKA: debridement and antibiotic-loaded articulating cement spacer (ALCS) insertion as the first stage and TKA as the second stage. We recorded demographics, laboratory results, and radiographic findings including Kellgren-Lawrence classification (KL) for knee arthritis. Outcomes including infection eradication, knee range of motion (ROM), and patient-reported outcome measures were evaluated. **Results:** The patient cohort had a mean age of 71.8 years (range, 40–86); they were followed for an average of 4.1 years (range, 2.2–13.3). Also, 40 patients showed KL grade 4, whereas 10 patients showed grade 3. A pathogen was identified in 38 cases (73.1%); methicillin-resistant staphylococci infections (N = 16) and *Candida* spp infections (N = 7) were the 2 most common types. Constrained prostheses were used in 10 cases (20%). Stem augmentations were used in 15 cases (36.0%) and block augmentations were used in 8 cases (19.0%). One patient had recurrent infection after TKA, so the eradication rate was 98%. After 2-stage TKA, the mean knee ROM was 119.4° (range, 80°–140°) and the mean Knee Society (KS) knee score was 90.4, the average KS function score was 84.7, the average Hospital for Special Surgery (HSS) score was 87.2, and the average Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) score was 16.7. The KS function scores (P = .029) and the WOMAC scores (P = .022) were significantly better