2-day training-of-trainers course. Between June and September 2020, 963 HCWs from 194 hospitals in 21 provinces received the training. HCW knowledge was assessed using a 20-item questionnaire consisting of multiple-choice questions at the beginning and closing of the training course. A participant received 1 point for each correct answer. He or she was considered to have improved knowledge the posttest score was higher than the pretest score with a score ≥15 on the posttest. We applied the McNemar test and logistic regression model to test the level of association between demographic factors and change in knowledge of COVID-19. **Results:** Overall, 100% of HCWs completed both the pretest and posttest. At baseline, only 14.7% scored ≥15. Following the training, 78.4% scored ≥15 and 64.3% had improved knowledge according to the predetermined definition. Questions related to the order of PPE donning and doffing and respiratory specimen collection procedures were identified as having the greatest improvement (44.6% and 60.7%, respectively). Being female (OR, 1.5; 95% CI, 1.1–2.0), having a postgraduate degree (OR, 2.5; 95% CI, 1.4–4.4), working in a nonmanager position (OR, 1.5; 95% CI, 1.1–2.1), previous contact with a COVID-19 patient (OR, 1.5; 95% CI, 1.1–2.0), and working in northern Vietnam (OR, 2.0; 95% CI, 1.4–2.6), were associated with greater knowledge improvement. **Conclusions:** Most HCWs demonstrated improved knowledge of COVID-19 prevention and control after attending the training. Particular groups may benefit from additional training: those who are male, leaders and managers, those who hold an undergraduate degree, and those who work in the southern provinces.

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Subject Category: Emerging and re-emerging infectious diseases in the healthcare setting
Abstract Number: SG-APSIC1042

Cutaneous cryptococcosis in patient with advanced HIV disease: Is it possible to give antifungal monotherapy?

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Objectives: *Cryptococcus* infection is one of the major human immunodeficiency virus (HIV)–related opportunistic infections, and the CD4 count falls below 100 per μL. Primary treatment for HIV-associated cutaneous cryptococcosis is amphotericin B (AmB) plus flucytosine. **Methods:** We present the case of a man with advanced HIV disease who developed whole-body cutaneous lesions yet improved with high-dose fluconazole alone. **Results:** A 33-year-old Asian man with a medical history of pulmonary tuberculosis and cryptococcal meningitis with complete treatment, injection drug use, and HIV infection with default of antiretroviral treatments (ART) 3 years earlier, presented to the emergency department with fever, oral thrush, and 30-pound weight loss over 6 weeks. He also had plaques, multiple hard papulonodules with central ulceration, and macular skin lesions all over his body of varying size. Blood cultures were negative for bacteria growth, but fungal microscopy of the blood culture showed unspecific hypha. Histopathology examination of the skin biopsy showed a classic "soap bubble" appearance, which is associated with *Cryptococcus* infection. Laboratory values revealed anemia (8.6 g/dL), leukopenia (2.9 $\times 10^9$/L), lymphopenia (58/μL), and thrombocytopenia (145 $\times 10^9$/L). The CD4 cell count was 18/μL, and the serum viral load was 638.665 copies/mL. Lumbar puncture could not be performed due to patient refusal. Treatment with high-dose fluconazole (1,200 mg) for 3 months was initiated and is planned to continue with consolidation and maintenance dose. ART was administered 4 weeks after starting antifungal therapy. His fever resolved and slow regression of the skin lesions occurred after treatment was given. **Conclusions:** Cutaneous cryptococcosis was assessed by biopsy of the cutaneous lesion, which is essential to confirming the diagnosis. In the case of cryptococcosis, skin infection may indicate a further progression of advanced HIV disease. In HIV-infected patients with Cryptococcus findings in any part of the body, a lumbar puncture should be considered to rule out central nervous system infection. Although neither AmB nor flucytosine was given due to unavailability in this area, the patient improved. In resource-limited settings, high-dose fluconazole alone may be useful as an alternative treatment, although it is also very challenging.

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The effectiveness of an ultraviolet-C device for terminal room disinfection in an intensive care unit

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Objectives: Medical devices and the hospital environment can be contaminated easily by multidrug-resistant bacteria. The effectiveness of cleaning practices is often suboptimal because environmental cleaning in hospitals is complex and depends on human factors, the physical and chemical characteristics of environment, and the viability of the microorganisms. Ultraviolet-C (UV-C) lamps can be used to reduce the spread of microorganisms. We evaluated the effectiveness of an ultraviolet-C (UV-C) device on terminal room cleaning and disinfection. **Methods:** The study was conducted at an ICU of a medical center in Taiwan. We performed a 3-stage evaluation for the effectiveness of UV-C radiation, including pre–UV-C radiation, UV-C radiation, and a bleaching procedure. The 3 stages of evaluation were implemented in the ICU rooms from which a patient had been discharged or transferred. We collected the data from adenosine triphosphate (ATP) bioluminescence testing, colonized strains, and their corresponding colony counts by sampling from the environmental surfaces and air. We tested 8 high-touch surfaces, including 2 sides of bed rails, headboards, footboards, bedside tables, monitors, pumping devices, IV stands, and oxygen flow meters. **Results:** In total, 1,696 environmental surfaces and 72 air samples were analyzed. The levels of ATP bioluminescence and colony counts of isolated bacteria decreased significantly after UV-C radiation and bleaching disinfection for both the environmental and air samples ($P < .001$). Resistant bacteria (vancomycin-resistant *Enterococcus*, VRE) were commonly isolated on the hard-to-clean surfaces of monitors, oxygen flow meters, and IV pumps. However, they were also eradicated ($P < .001$). **Conclusions:** UV-C can significantly reduce environmental contamination by multidrug-resistant microorganisms. UV-C is an effective device to assist staff in cleaning the hospital environment.

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Introduction of carbapenemase-producing Enterobacterales (CPE) in the aqueous environment of the newly built National Centre for Infectious Diseases (NCID) in Singapore

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Objectives: In healthcare facilities, environmental reservoirs of CPE are associated with CPE outbreaks. In the newly built NCID building, we studied the introduction of CPE in the aqueous environment. **Methods:** We sampled the aqueous environments (ie, sink, sink strainer, and shower drain-trap with Copan E-swabs and sink P-trap water) of 4 NCID wards (ie, 2 multidrug-resistant organism (MDRO) wards and 2 non-MDRO wards). Two sampling cycles (cycle 1, June–July 2019 and cycle 2, September–November 2019) were conducted in all 4 wards. Cycle 3 (November 2020) was conducted in 1 non-MDRO ward to investigate CPE colonization from previous cycles. Enterobacterales were identified using MALDI-TOF MS and underwent phenotypic (mCIM and eCIM) and confirmatory PCR tests for CPE. **Results:** We collected 448, 636, and 96 samples in cycles 1, 2, and 3, respectively. MDRO and non-MDRO wards were operational for 1 and 7 months during the first sampling cycle. The CPE prevalence rates in MDRO wards were 1.67% (95% CI, 0.46% – 4.21%) in cycle 1 and 1.76% (95% CI, 0.65% – 3.80%) in cycle 2. In the aqueous environments in MDRO wards, multiple species were detected (cycle 1: 2 *K. pneumoniae*, 1 *E. coli*, and 1 *S. marcescens*; cycle 2: 5 *K. pneumoniae* and 1 *R. planticola*), and multiple genotypes were detected (cycle 1: 3 *bla*OXA48; cycle 2: 5 *bla*OXA48 and 1 *bla*KPC). The CPE prevalence in non-MDRO wards was 1.92% (95% CI, 0.53%–4.85%) in cycle 1. The prevalence rate increased by 5.51% (95% CI, 1.99%–9.03%) to 7.43% (95% CI, 4.72%–11.04%; P = .006) in cycle 2, and by another 2.98% (95% CI, −3.82% to 9.79%) to 10.42% (95% CI, 5.11% – 18.3%; P = .353) in cycle 3. Only *bla*OXA48 *S. marcescens* were detected in all cycles (except 1 *bla*OXA48 *K. pneumoniae* in cycle 2) in the non-MDRO ward. **Conclusions:** CPE established rapidly in the aqueous environment of NCID wards, more so in MDRO wards than non-MDRO wards. Longitudinal studies to understand the further expansion of the CPE colonization and its impact on patients are needed.

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Scoping review of cleaning of high-touch surfaces (HTSs) in inpatient wards

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Objectives: High-touch surface (HTS) cleaning is critical to prevent healthcare-associated infections. However, HTS definitions and cleaning frequency vary across guidelines. We conducted a scoping review of published guidelines on HTS definitions and recommended cleaning frequency in inpatient wards. **Methods:** We searched national and societal guidelines on Google and PubMed using the following search terms: [(environmental cleaning/disinfection/housekeeping/sanitization), (hospital/healthcare/infection control prevention/inpatient/acute care), and (practice/guideline/guidance/methodology/protocol)]. We compared the guidelines' HTS definitions, recommended cleaning frequency, and supporting evidence. **Results:** In total, 9 environmental cleaning guidelines were included: Centers for Disease Control and Prevention (CDC 2020); Asia Pacific Society of Infection Control (APSIC 2013); International Society for Infectious Diseases (ISID 2018); Joint Commission Resources (JCR 2018); National Health Service, United Kingdom (NHSUK 2021); Public Health Agency, Northern Ireland (PHANI 2016); Public Health Ontario, Canada (PHOC 2018); National Health and Medical Research Council, Australia (NHMRC 2019); Ministry of Health, Singapore (MOH 2013). These 6 guidelines identified 31 types of HTS: bed rails and frames [mentioned by 6 of 6 guidelines]; call bells, doorknobs and handles (5 of 6 guidelines); bedside tables and handles, light switches, overbed and tray tables, and sinks and faucet handles (4 of 6 guidelines); chairs and chair arms, edges of privacy curtains, IV infusion pumps and poles, keyboards, medical equipment, monitoring equipment, and telephones (3 of 6 guidelines); assist bars, counters, elevator buttons, toilet seats and flushes, transport equipment, and wall areas around the toilet (2 of 6 guidelines); and bedpan cleaners, beds, blankets, commodes/bedpans, dispensers, documents, mattresses, monitors, mouse, pillows, and touch screens (1 of 6 guidelines). The JCR, NHMRC, NHSUK guidelines did not define HTSs. The 6 guidelines recommended at least daily cleaning for HTSs, but ISID, JCR, and NHSUK guidelines did not mention HTS cleaning frequency. The CDC guidelines further specified at least once daily cleaning for inpatient wards and private toilets and twice daily for public or shared toilets. None of the guidelines cited any references for HTS cleaning frequency recommendations. **Conclusions:** There is no uniformity in HTS definitions among 6 guidelines, and the recommended HTS cleaning frequency in these guidelines was not supported by published evidence. Studies exploring optimal cleaning frequency of HTSs are needed.

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Assessment of compliance to cleaning of computers by healthcare workers (HCWs) using adenosine triphosphate (ATP) measurement

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Objectives: HCWs are recommended to wipe the computers with alcohol wipes before clinical use. Compliance assessment by direct observation is resource intensive. We used ATP measurement as a surrogate to assess the