strongly recommended. WHO suggests using a particulate respirator for a maximum of six hours to avoid increasing oxygen debt, fatigue, CO2 levels, and nasal resistance. **Methods:** This study was observational, using a cross-sectional method conducted from February to April 2022. Participants were healthcare workers (HCWs), including doctors, nurses, and other HCWs who worked in ward of Mawar 1 Isolation Rooms. As screening, the participants underwent a Quantitative Fit Test with PortaCount® Respirator Fit Tester 8038, using particulate masks such as 3M 1870, 3M Vflex 9105, Dreamcan ME01LK, Dreamcan ME0 12.5, and RespoKare that are available in the hospital, while bending over, talking, head side to side, and head up and down. While doing the movement, the Fit Test Score had to reach ≥100. Then, we measured heart rate, oxygen saturation, and respiration rate before they entered and left the isolation rooms. **Result:** Thirty-one HCWs passed the screening test. One HCW could fit to more than one respirator. Sixteen (41,03%) HCWs fit to 3M Vflex 9105, 10 (25,64%) HCWs fit to Dreamcan ME01LK, 6 (15,38%) HCWs fit to RespoKare, 4 (10,26%) fit to 3M 1870 and 3 (7,69%) fit to Dreamcan ME0 12.5. HCWs served in the isolation room for 74,06 ± 28,18 (35-150) minutes. We found a significant difference in heart and respiration rates before entering and after leaving the isolation room ($p<0.05$). In contradiction, the study showed no difference in O2 saturation ($p=0,06$).

Keywords: Healthcare Workers; Quantitative Fit Test; Personal Protective Equipment

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Investigation and experience sharing of increased Vancomycin-Resistant Enterococcus (VRE) cases in adult intensive care units of hospitals in southern Taiwan

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Background: The adult intensive care unit comprises a total of 18 beds. On October 18, 2023, a text notification alerted us to a patient whose wound culture tested positive for Enterococcus faecium (VRE). Following protocol, an Anus VRE screening was conducted on the adjacent bed, revealing three additional positive cases, suggesting a cluster outbreak. Investigation and management were initiated. **Methods:** Through interviews, observations, medical record reviews, and expanded VRE screenings, a total of 8 beds tested positive, resulting in a positivity rate of 44.4% (8/18), all cases being colonization. Root cause analysis identified failures in hand hygiene among healthcare workers (HCWs), failure to wash hands before donning gloves, incorrect sequencing of environmental cleaning and disinfection, and inadequate implementation of contact isolation precautions. Measures included conducting Anus VRE screening for ICU admissions from October 15th to 18th, increasing the frequency of unit cleaning and disinfection, providing education and training, auditing hand hygiene practices and isolation measures, and centralizing VRE patient care. **Results:** Utilization of multiple measures for controlling drug-resistant bacterial infections, including auditing hand hygiene, environmental cleaning and disinfection, implementing contact isolation precautions, and conducting environmental sampling, yielded negative results. Observation until November 30th showed no new cases, effectively controlling the spread of drug-resistant bacteria and preventing healthcare-associated infections due to VRE. **Discussion:** Despite HCWs' often busy clinical care responsibilities leading to neglect of hand hygiene or substituting handwashing with glove usage, and lapses in implementing contact isolation precautions, no healthcare-associated infections occurred, and patients were successfully discharged without disease exacerbation or fatalities. Environmental sampling was conducted post-environmental disinfection. Additionally, all VRE-positive patients were identified as Enterococcus faecium (VRE). Due to limitations, PFGE testing couldn't be conducted, hence strain and susceptibility determination confirmed the same VRE colonization event within the hospital.

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Antibiofilm activity of chlorhexidine and levofloxacin on pathogen causing orthopaedics implant-related infections

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Objectives: The incidence of hospital-acquired infections (HAIs) related to the formation of biofilms reaches 80% of the total cases of infection in the world. It can infect patients using invasive medical equipment such as orthopaedics implants. Biofilm-related implant orthopaedics infections account for approximately 65% of all bacterial infections. Once bacteria adhere to the implant, a bacterial community established biofilm that can enhance resistance to antibiotics up to 1000 times. Therefore, an appropriate strategy is needed to eradicate biofilm. Chlorhexidine as an antiseptic and levofloxacin as an antibiotic are often used in the orthopaedics' setting. This study investigated in vitro antibiofilm activity of chlorhexidine and levofloxacin against bacterial isolates obtained from patient with implant orthopaedics-related infections. **Methods:** Ten clinical isolates of bacteria with strong biofilm-producer were collected from patients with orthopaedics implant-related infections including *Staphylococcus aureus* (n=2), *Staphylococcus haemolyticus* (n=1), *Serratia marcescens* (n=2), *Pseudomonas aeruginosa* (n=2), *Proteus mirabilis* (n=1), *Acinetobacter baumannii (*n=1*)* and *Klebsiella pneumoniae* (n=1). The inhibition and eradication activity of chlorhexidine and levofloxacin on biofilm growth were performed using microtiter broth dilution method in 96-well plates. **The minimum biofilm inhibitory concentration (MBIC) and minimum biofilm eradication concentration (MBEC) were determined using the MTT (3-(4-5- dimethylthiazol-2-yl)2,5-dyphenyl tetrazolium bromide) reduction assay. Results:** This study found that chlorhexidine inhibited the growth of Gram-positive bacterial biofilms by 80% with MBIC80 values ranged from 4-16 µg/ml and eradicated 80% of biofilm with MBEC80 value was 32 µg/ml. For Gram-negative bacterial biofilms, the ability of chlorhexidine to inhibit 80% of biofilm growth was indicated by MBIC80 values ranged from 8-16 µg/ml and to eradicate 80% of biofilm with MBEC80 values ranged from16-64 µg/ml. Meanwhile, levofloxacin can inhibit the growth of Gram- positive bacterial biofilms by 80% with MBIC80 values ranged from 1-4 µg/ml and can eradicate 80% of biofilm with MBEC80 values ranged from 16-32 µg/ml. For Gram-negative bacterial biofilms, the MBIC80 values of levofloxacin ranged from 1-16 µg/ml and the MBEC80 values ranged from 4-32 µg/ml. **Conclusions:** This result indicated that chlorhexidine and levofloxacin are potential to inhibit and eradicate bacterial biofilm. However, further studies need to be done for clinical evaluation.

Keywords: orthopaedics implant-related infection; biofilm; eradication; chlorhexidine; levofloxacin

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