the European Surveillance of Antimicrobial Consumption Network (ESAC- Net) and National Institute for Health and Care Excellence (NICE) guidelines were used as a measure of appropriateness of antibiotic prescribing. Descriptive statistics and T-test was used to compare prescription rates pre- and post-COVID-19 pandemic. **Results:** 19,325 and 20,692 oral and topical antibiotics were prescribed for 831,669 visits, with a prescription rate of 2.3% and 2.5% respectively. Mean antibiotic prescriptions fell significantly post-pandemic (2020–2021), compared to pre-pandemic numbers (1062.8 to 604.5 prescriptions per month) ($p <0.001$). The majority (95.8%) of prescriptions belonged to the Access group. Watch group antibiotics constituted 6.1% of the total antibiotics prescribed for respiratory conditions (n = 562). While prescriptions were low (4.1%) and well within EASC-Net quality indicator limits of 0-20% for respiratory infections, prescriptions for otitis media were significantly high (56.6%). Approximately 1 in 2 children received antibiotics as recommended by NICE guidelines for both respiratory infections (n=4,622, 51.5%) and otitis media (n=204, 51.8%). **Conclusions:** Primary care antibiotic prescriptions for children in Singapore decreased post- COVID-19. However, high rates of otitis media prescriptions and only 50% appropriateness for respiratory infections and otitis media emphasize the need for targeted improvements in these areas.

Evaluation of loop-mediated isothermal amplification (LAMP) assay for detection of five bacterial periprosthetic joint infection

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Objectives: Periprosthetic joint infection (PJI) is one of the most serious and debilitating complications that can occur after total joint arthroplasty. Therefore, early diagnosis and appropriate treatment are important for a good prognosis. Recently, molecular diagnostic methods have been widely used to detect the causative microorganisms of PJI sensitively and rapidly. The Multiplex Loop- Mediated Isothermal Amplification (LAMP) method is faster and easier to perform compared to polymerase chain reaction (PCR)-based assays. Therefore, this study developed a multiplex LAMP assay for diagnosing bacterial PJI using LAMP technology and evaluated its analytical and clinical performance. **Methods:** We developed a multiplex LAMP assay for the detection of five bacteria: Staphylococcus aureus, Staphylococcus epidermidis, Streptococcus agalactiae, Pseudomonas aeruginosa, and Escherichia coli, frequently observed to be the causative agents of PJI. The method limit of detection (LOD) and cross-reactivity were determined by spiking standard strains into the joint synovial fluid. The LOD of the multiplex LAMP assay was compared with that of a quantitative real-time PCR (qPCR) assay. Clinical performance was evaluated using 20 joint synovial fluid samples collected from patients suspected of having bacterial PJI. **Results:** The LOD of the gram-positive bacterial multiplex LAMP assay and qPCR were $10^5/10^4$ CFU/mL, $10^3/10^3$ CFU/mL, and $10^5/10^4$ CFU/mL against *S. agalactiae*, *S. epidermidis,* and *S. aureus*, respectively. For *P. aeruginosa* and *E. coli*, the LOD of the multiplex LAMP and qPCR assays were $10^5/10^4$ and $10^6/10^4$ CFU/mL, respectively. The multiplex LAMP assay detects target bacteria without cross-reacting with other bacteria, and exhibited 100% sensitivity and specificity in clinical performance evaluation. **Conclusions:** This multiplex LAMP assay can rapidly detect five high-prevalence bacterial species causing bacterial PJI, with excellent sensitivity and specificity, in less than 1 h, and it may be useful for the early diagnosis of PJI.

Keywords: bacteria; periprosthetic joint infection; diagnosis; multiplex; loop-mediated isothermal amplification

Effectiveness of visual inspection, practices observation and aerobic colony count to monitor hospital cleanliness

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Background: Enhancing environmental hygiene resulted in a reduction of multidrug-resistant microorganisms colonization and healthcare-associated infections. There has been less studies to compare the effects of practice observation with other methods. This study aimed to compare correlations between visual inspection, practice observation and aerobic colony count (ACC) and verify the effectiveness. **Methods:** A prospective study was conducted in a medical intensive care unit from May 2021 to November 2022. High-touch surfaces were assessed by visual inspection (clean or not clean) and practice observation (compliant or not compliant) to compare the correlations by using ACC with the cut-off point of 2.5 CFU/cm^2 as a golden standard. **Results:** Among 569 samples, the pass rate by ACC was 90.5%, the clean rate by visual inspection was 73.3%, and the compliant rate by practice observation was 47.1%. The concordance was 245 surfaces (43.1%) of the three methods. There was no correlation between visual inspection and ACC (p<0.001, φ=0.184). The correlations were weak positive between visual inspection and practice observation and between practice observation and ACC (p<0.001, φ=0.212, 0.233). The median aerobic colony count of "compliant" group (0.00 CFU/cm^2) was significantly lower than "not compliant" (0.40 CFU/cm^2) (p<0.001). The median aerobic colony count of "clean" groups (0.08 CFU/cm^2) was also significantly lower than "not clean" groups (0.20 CFU/cm^2) (p<0.001). **Conclusion:** Practice observation is more reliable than visual inspection. Therefore, visual inspection *can be used for low risk area to maintain* visibly clean. In high *risk area, an integrated program is critical to* combine practice observation w*ith other methods to monitor cleanliness.*

Optimizing antimicrobial stewardship in the management of vertebral osteomyelitis: a decadal analysis at a central Taiwan Tertiary Teaching Hospital

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Objectives: Vertebral Osteomyelitis (VO) poses a formidable challenge, manifesting as infectious pathology affecting the vertebral body and intervertebral disc, marked by persistent back pain, unresponsiveness to conventional treatment, and elevated inflammatory markers. Timely therapy is crucial, emphasizing its impact on patient outcomes and aligning with antimicrobial stewardship principles. This study investigates the consequences of delayed appropriate antibacterial therapy on clinical outcomes, emphasizing its relevance within the context of optimizing antibiotic utilization. **Methods:** In a single-center cross-sectional study from January 2012 to December 2022, we focused on adult VO patients, diverging from standardized therapies to explore real-world treatment approaches. Criteria included clinical presentation, bacteriologic evidence, or imaging studies. Data, collected through the hospital's clinical management software (HIS system), included demographic features, diseases, clinical history, laboratory findings, microbiological diagnoses, radiological details, complications, and outcomes. This analysis aims to provide nuanced insights into diverse management strategies and associated clinical outcomes related to VO while highlighting the pivotal role of antimicrobial stewardship. **Results:** The study involved 230 adult VO patients (mean age 64.7 years, male predominance 30.8%)(Table1). Positive microbiology cultures were found in 58.7% of cases, predominantly Gram-positive organisms. Patients with appropriate initial therapy had significantly lower severe back pain rates than those with inappropriate therapy (OR = 0.308, 95% CI 0.098, 0.971, p=0.044)(Table 2).