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10th International Congress of the Asia Pacific Society of Infection Control 2022 (APSIC 2022) Abstracts

Subject Category: Antibiotic Stewardship
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Impact of a single intervention as part of a antimicrobial stewardship in a surgical unit of a tertiary-care referral center for neurosurgery

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Background: Antimicrobial resistance is a worldwide problem leading to increasing deaths due to intractable infections, especially in postoperative patients who have extended stays in ICUs due to other surgical complications. Carbapenem and colistin resistance has been increasing here; hence, it was decided to monitor and control antibiotic use. In the neurosurgery unit of a quaternary-care hospital in South India, surgical prophylaxis was chosen as less problematic area in which to implement antibiotic stewardship. **Objective:** To study the difference in the antibiogram pattern of isolates from neurosurgery postoperative patients, before and after the introduction of a surgical antimicrobial prophylaxis policy from the UK National Health Service (NHS). **Methods:** After the implementation of a new surgical prophylaxis protocol taken from the UK NHS guidelines, we studied its impact by analyzing the antibiogram before implementation (period 1 from January 1, 2020, to December 31, 2020) and after implementation (period 2 from April 1, 2021, to September 30, 2021). This period corresponded to the same number of isolates as the earlier period. **Antibiogram criteria:** All clinically relevant infections due to the ESKAPE pathogens were included in the antibiogram. The antibiotics analyzed included β-lactams, cephalosporins, β-lactam- lactamase combinations, carbapenems, aminoglycosides, colistin and tigecycline for gram-negative bacilli and penicillin, oxacillin, aminoglycosides, vancomycin, and linezolid for gram-positive cocci. For analysis, the difference was deemed significant according to the criteria stated in CLSI document M39-A4 (4th edition, January 2014). **Results:** In period 1, 170 isolates were tested, and in period 2, 162 isolates were tested. Among the isolates, *Enterococcus* spp and *Enterobacter* spp were too few in number for a comparison. For the gram-negative bacilli, *E. coli*, *Klebsiella pneumoniae*, and *Acinetobacter baumannii*, the differences were significant for the β-lactam–lactamase combinations, carbapenems, and amikacin, with higher susceptibility in period 2. For *Staphylococcus aureus*, oxacillin, erythromycin, and clindamycin showed a significant increase in susceptibility in period 2. Relevant tables and a graph will be included in the presentation with detailed discussion. **Conclusions:** Controlled surgical prophylaxis strictly implemented can lead to a significant change in the antibiotic susceptibility pattern among isolates causing healthcare-associated infections among postoperative patients in intensive care units.

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Engaging inpatients in antibiotic stewardship efforts: The need to enhance knowledge and increase involvement in their antibiotic therapy

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Objectives: In tertiary-care settings, up to 50% of patients are prescribed at least 1 antibiotic. However, patients are often not proactively provided with information nor involved in shared decisions regarding their antibiotic therapies. Understanding inpatients' knowledge and the extent of their involvement in antibiotic therapy help reduce inappropriate or unnecessary antibiotic use. **Methods:** A cross-sectional survey was conducted from March to December 2021 in a 1,600-bed, adult, acute-care, tertiary-care hospital. Patients prescribed antibiotics for the past 1 week during their hospital stay were surveyed. Ten questions assessing patients' knowledge of their antibiotic therapy and 3 questions adapted from the NHS Care Quality Commission Inpatient survey (2013) were included in the survey questionnaire. **Results:** Among the 323 patients surveyed, 88% knew that they had been given antibiotics, and 80% felt that it was important to be informed of the reason, 76% felt that it was important to be informed of side effects, 74% felt that it was important to be informed of duration, and 72% felt that it was important to be informed of dosing frequency. However, only 71% knew the dosing frequency, 54% knew the side effects, 37% knew the duration, and 13% knew the name of the antibiotic agent administered. Of those unaware of the antibiotic name, 59% had indicated their desire to know. Among those aware of their antibiotic therapy, 85% had trust in their doctors but only 42% felt that they always received answers to their questions on antibiotics in an understandable manner from their doctors. Furthermore, 41% felt that they were often or always not given enough time to question their doctors. To raise their awareness on antibiotic use, 73% of respondents felt that having protected time with the doctors to understand more about their antibiotic therapy would be effective. **Conclusions:** Most inpatients lacked knowledge of details of their antibiotic therapy, and fewer than half were involved in it. Allocation of protected time with doctors to understand their antibiotic therapy can be a potentially effective strategy to increase patient engagement to enhance hospital antibiotic stewardship efforts.

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Virulence factors and antimicrobial resistance in coagulase-negative staphylococci isolated from blood of neonates

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Objectives: To determine virulence genes and sensitivity to antibacterial drugs of *Staphylococcus epidermidis* isolated from blood cultures of newborns. **Methods:** A study of coagulase-negative *Staphylococcus* (CoNS) from newborns with sepsis was conducted in the regional perinatal center in Karaganda, Kazakhstan. Blood-culture identification was performed using MALDI-TOF MS. Virulence factors were determined on primers (*sdrG*, *sdrG*, *atl*, *lip*, *nuc*, *ebh*, *hlb*, *sspA*, *sspB*, and *gehD*) with PCR (Bio-Rad CFX 96). Susceptibility to antibiotics determination was carried out using the disc-diffusion method. Testing with cefoxitin was used to detect methicillin resistance in staphylococci. **Results:** Overall, 18

Staphylococcus epidermidis isolates from blood cultures of newborns with sepsis were investigated from January to December 2021. The frequency of detection of virulence genes was distributed as follows: *atl* (94.5%), *sspB* (94.5%), *sspA* (89%), *gehD* (89%), *ebh* (89%), *hlb* (72%), *sdrG* (39%), *sdrF* (28%), *nuc* (28%), and *lip* (13%). Also, 10 isolates (55%) were resistant to cefoxitin (MRSE). Furthermore, 72% of *S. epidermidis* isolates showed resistance to azithromycin and 33% were resistant to clindamycin and gentamicin. Also, 39% of strains were resistant to fluorchinolones. All isolates were susceptible to vancomycin, linezolid, and fusidic acid. **Conclusions:** *S. epidermidis* strains isolated from blood cultures had high rates of exoenzymes sspB, sspA, gehD, autolysin (atl), β-hemolysin (hlb), and cell-wall–associated fibronectin-binding protein (ebh). Among 18 neonatal sepsis pathogens, 10 (55%) were MRSE, so it is necessary to pay attention to antibiotic therapy adjustment.

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Trend of 'ESKAPE' and their susceptibility changes for meropenem and levofloxacin during the pandemic at Sardjito Hospital Yogyakarta Indonesia
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Objectives: The bacteria in the 'ESKAPE' group are monitored due to their ability to resist antibiotic action. During the COVID-19 pandemic at our hospital, the usage of meropenem and levofloxacin as the empirical treatment for bacterial pneumonia increased and might have contributed to the antimicrobial resistance problem. In this study, we evaluated the ESKAPE group infection rates and their susceptibility to antibiotics in Dr. Sardjito Hospital, a referral and academic hospital in Yogyakarta, Indonesia. **Methods:** Data for ESKAPE pathogens in 2019–2021 were taken from the microbiology laboratory of Dr. Sardjito Hospital and were evaluated. **Results:** The proportion of ESKAPE isolates among positive cultures during 2019–2021 slightly increased from 49.4% to 48.4% to 50.7% each year ($P > .05$). The dominant ESKAPE infections were pneumonia, bloodstream infection, and urinary tract infection by *K. pneumoniae*, and wound infection by *P. aeruginosa*. The susceptibility pattern of ESKAPE to meropenem decreased from 72% in 2019 to 68% in 2020 but increased to 84% in 2021. To levofloxacin, the susceptibility pattern was decreased in a fluctuating trend from 68% in 2019 to 33% in 2020 and to 39% in 2021. During the COVID-19 pandemic (2020–2021), the pattern of ESKAPE infections was similar to that of 2019. In descending order, the frequency rank was *K. pneumoniae, P. aeruginosa, A. baumannii, Enterobacter spp*, and *S. aureus*. The proportions of MDR isolates increased from the prepandemic period to the COVID-19 pandemic era for *E. faecium* (from 5% to 24.4%), for *A. baumannii* (from 9.6% to 38.5%), and for *P. aeruginosa* (from 7.4% to 13.5%) ($P < .05$). These patterns did not differ between non–COVID-19 patients and COVID-19 patients. These results highlight the general impact of overused antibiotics beyond COVID-19 patients. Usage of watched and restricted antibiotics must be more controlled because bacterial coinfection and superinfection in COVID-19 patients was relatively low. **Conclusions:** During the COVID-19 pandemic, ESKAPE infections increased and their susceptibility to meropenem and levofloxacin decreased. Tight control of antibiotic usage is needed.

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Subject Category: COVID-19
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Association between severity of COVID-19 pneumonia and vaccination status in a tertiary-care teaching hospital in Malaysia
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Background and objectives: Since the introduction of the COVID-19 vaccine through the National COVID-19 Immunization Program in Malaysia in February 2021, the number of cases of severe COVID-19 and mortality have progressively decreased. We explored the association between vaccination status, type of vaccine, and the highest COVID-19 clinical category. **Methods:** Patients were recruited via the electronic medical record (EMR) at University Malaya Medical Centre (UMMC) from July 2021 onward. Included patients were aged ≥18 years old with positive SARS-CoV-2 RT-PCR results from respiratory samples (naso-oropharyngeal swab, saliva, or sputum). Patient demographic data, COVID-19 clinical category, vaccination status, and type of vaccine received were recorded. **Results:** In total, 1,391 positive SARS-CoV-2 PCR results were reviewed; 1,188 patients (85%) with complete data were analyzed. These patients' median age was 50 years. The proportions of patients COVID-19 clinical categories were as follows: category 1 (4.04%), category 2 (28.37%), category 3 (10.7%), category 4 (30.6%), and category 5 (2.6%). The mortality rate was 21.5%. As of July 2021, only 16.8% of patients were fully vaccinated, 30.3% were vaccinated, 31.5% unvaccinated, and 21.5% had unknown vaccination status. In total 364 patients with category 4 COVID-19 (4.4%; $P < .001$) were fully vaccinated and no patients who were fully vaccinated had category 5 COVID-19 ($P = .011$). Furthermore, 40.8% of patients who died had unknown vaccination status ($P < .01$); 28.1% of patients who died were unvaccinated ($P = .015$); 25.3% of patients who died were partially vaccinated ($P = .036$); and 0.4% of patients who died were fully vaccinated ($P < .001$). For category 4 and 5 illness and death, there were no significant differences between the type of vaccine received (Pfizer-BioNTechR, Astra ZenecaR and Coronavac/SinovacR) and severe COVID-19. **Conclusions:** The completion of 2 doses of government-approved COVID-19 vaccination is paramount in preventing severe COVID-19 disease and death. Rapid rollout and equitable distribution of vaccination should be initiated. Vaccine hesitancy should be promptly addressed to ensure vaccination uptake.

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Detection of SARS-COV-2 in nasopharyngeal swags with MALDI-TOF MS and machine learning
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Objectives: The widespread distribution of SARS-CoV-2 and its high contagiousness pose a challenge for researchers seeking to develop a rapid and cost-effective screening method to identify carriers of this virus. RT-PCR is considered the gold standard for detecting viral RNA in nasopharyngeal