

catheter placement called as Catheter-Associated Urinary Tract Infection (CAUTI). Catheterization is considered as a port of entry that lead to infection. In sepsis patients, CAUTI can significantly affect clinical outcomes. Prolonged CAUTI can worsen but can be prevented via suitable intervention, particularly in septic patients with urine catheters. To effectively prevent and manage diseases, gathering data focusing on surveillance is essential. Hence, examining multiple risk variables associated with CAUTI is vital, including age, gender, diabetes mellitus, kidney failure, frequency and duration of catheterization, and duration of antibiotic usage before urine culture. **Method:** A quantitative study using a cross-sectional design by selecting samples using total sampling was conducted at RSPAD Gatot Soebroto (n=42). All sepsis patients using catheters met the inclusion criteria. The data obtained was analysed (univariate, bivariate and multivariate), which will be presented in table and narrative format. **Results:** It was found that 21 sepsis patients with catheters confirmed CAUTI. Risk factors in septic patients with catheters that have a significant relationship with CAUTI are diabetes mellitus (p=0.013), kidney failure (p=0.005), length of stay (p=0.013), duration of antibiotic usage before urine culture (p=0.031), frequency of catheterization (p=0.028), and duration of catheterization (p=0.013). However, age (p=0.739) and gender (p=0.757) did not have a significant relationship. In the multivariate test was found that the most significant variables were kidney failure (p=0.006; OR=22.219; 95%CI=2.424- 293.744) and duration of catheterization (p=0.009; OR=19.147; 95%CI=2.070-177.149). **Conclusion :** Our findings indicate that kidney failure and duration of catheterization are the most significant risk factors for septic patient who develop CAUTIs. To enhance the clinical outcomes of sepsis patients prone to CAUTI, it is crucial to identify the risk factors as a part of treatment management and infection prevention control.

Keywords: UTI; CAUTI; sepsis patient; risk factors; Indonesia

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Factors influencing Meropenem utilization as the drug of choice in patients with pneumonia at a referral hospital in Makassar

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Objectives: Meropenem has become one of the most widely used antibiotics and is considered to be the drug of choice for empirical treatment in patients with pneumonia. The aim of this study is to evaluate factors associated with the use of Meropenem as a broad-spectrum antibiotic in a referral hospital in Makassar. **Methods:** In a retrospective observational study we conducted over one-month period (January- February 2024), adult patients diagnosed with pneumonia who received Meropenem were selected. We included data such as length of stay, admission to the intensive care unit, use of ventilator, basis of prescription (either empirical or culture-based), and laboratory profiles such as white blood cell count, procalcitonin levels, blood culture and resistance towards antibiotics. **Results:** Over one-month period, thirty patients admitted to our hospital with pneumonia were evaluated. Among these patients, several factors such as admission in intensive care unit, use of ventilator, and procalcitonin levels showed statically significance ($p < 0,05$) while blood culture and antibiotic resistance showed minimal impact towards utilization of Meropenem in patients with pneumonia. **Conclusions:** In conclusion, our study indicates that Meropenem usage for pneumonia treatment is significantly influenced by admission to the intensive care unit, use of ventilator, and specific laboratory parameters such as procalcitonin levels. Further research with larger scale is needed to evaluate utilization of Meropenem in clinical practices.

Key words: Meropenem; antibiotic utilization; pneumonia

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Observations of dialysis events in a tertiary care hospital outpatient dialysis unit over an eight-month period and significant measures implemented to reduce them

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Introduction: A common form of Renal Replacement Therapy is haemodialysis. Haemodialysis (HD) patients require a vascular access. Because of Frequent hospitalization the HD patients are at higher risk of developing infections. Positive Blood culture, IV antimicrobial use and signs of inflammation at vascular access site are the three dialysis events that can cause substantial morbidity and mortality in patients. The objective is to identify and implement strategies to prevent dialysis events within the facility by providing appropriate analyses of dialysis events.

Methodology: A prospective surveillance study was performed between April'23 and November'23 at our outpatient HD facility. All HD patients were eligible for the study if they received HD on first two working days of the month. We conducted a pre-stage study for two months from April'23 to May'23 and collected data. After detailed analysis, implementation measures were included in month of June'23. The surveillance was regarded as a process improvement project and further data for dialysis events were collected till month of November'23. **Interventions:** The following interventions were adopted as process improvement in hemodialysis unit; 1). Revision of the current antimicrobial policy of dialysis unit 2). Implementation of Core interventions to prevent the dialysis event like hand hygiene observation, catheter/vascular access care observation, staff education, patient education, catheter removal, CHG for skin preparation, Catheter hub disinfection and regular surveillance with feedback of Dialysis events. 3). Revised policy for regular RO water plant disinfection and microbiological testing **Results:** 755 patients were reviewed for dialysis events during the 09-month study period. A total of 16 dialysis events were reported with overall dialysis events rates was - 2.09/100 patient-months. The rate of IV antimicrobial use was-1.19/100 patient-months and the positive blood culture rate was-0.92/100 patient-months Gram-negative bacilli were predominant in patients with central lines (n = 9); however, skin commensals and gram negative bacilli were also identified in patients with fistula or graft (n = 2). A reduction in dialysis events from 3.3 /100 patient days to 1.08/100 patient days was observed after the implementation of core interventions. **Conclusion:** Dialysis events were significantly more frequent in patients with tunnelled or non-tunnelled central venous lines compared to those with fistula or graft. In haemodialysis patients, good compliance with antimicrobial policy and regular monitoring of core interventions will reduce the risk of dialysis events.

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Incidence and risk factors associated with healthcare associated infection of intensive care unit inpatients at Dr. Cipto Mangunkusumo Hospital

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Background: The rate of Healthcare Associated Infection (HAI) in the ICU is five to seven times higher compared to general. The aim of this study was to determine the incidence and risk factors for HAI in the ICU at Dr. Cipto Mangunkusumo hospital. **Methods:** This study use retrospective data, adult patients age ≥ 18 years who were treated in ICU and suspected diagnosis of HAI (including Ventilator associated pneumonia, Catheter associated urinary tract infection, Central line associated bloodstream infection and Surgical site infection) in period from October 2022 – January 2023 were included in this study. We analyze the examination results of each specimen with identification, antibiotic susceptibility test and genomic data using whole genome sequencing. **Results:** There were a total of 160 specimens with 108 positive culture

results. The organisms that most commonly cause infections from blood specimens are *Klebsiella pneumoniae* (3/11), *Acinetobacter baumannii* (1/11) and *Pseudomonas aeruginosa* (1/11). For sputum specimens, the causative pathogens obtained included *K. pneumoniae* (23/57), *A. baumannii* (11/57), and *P. aeruginosa* (9/57). Meanwhile, for urine specimens the main bacteria causing infection was *K. pneumoniae* (4/7). In the antibiotic susceptibility test, the results showed Carbapenem Resistant Organisms (CRO), namely *A. baumannii* 89.5% (17/19), *K. pneumoniae* 76.3% (29/38), *P. aeruginosa* 40% (4/10), and *E. coli* 20% (1/5) with positive ESBL presentation are 15.8% in *K. pneumoniae* and 40% in *E. coli*. **Conclusion:** We found that the most common risk factor for HAI was the use of medical devices. HAI infections that occurred from all the specimens we took were mainly caused by *Klebsiella pneumoniae*. The results of antibiotic resistance are also a matter of note because there are many organism that cause HAI were also Carbapenem-resistant antibiotics with variations in resistance genes (CTX-M, CTX-M-1, SHV, TEM).

Keywords: Healthcare associated infection; Intensive care unit; risk factor

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Isolation the bacteriophages against carbapenem-resistant *K. pneumoniae* (CRKP) from hospital wastewater effluent treatment in east-coast Malaysia

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Objectives: Antibiotic resistance is a global issue that has significant negative effects on both health and the economy. *Klebsiella pneumoniae* is grouped with *Enterococcus faecium*, *Staphylococcus aureus*, *Acinetobacter baumannii*, *Pseudomonas aeruginosa* and *Enterobacter* spp. (ESKAPE) as multidrug-resistant (MDR) bacteria worldwide. The challenges associated with controlling life-threatening infections caused by MDR organisms have pushed research focus toward alternative treatments, which include bacteriophage therapy. Therefore, this study aimed to isolate the carbapenem-resistant *K. pneumoniae* (CRKP) specific phages from the hospital sewage water effluent for future application in a clinical setting. **Methods:** Sewage samples were obtained from different points of hospital effluent. The collected samples were primarily filtrated and centrifuged to recover, purify, and concentrate the bacteriophage. The lytic phages were detected using a spot assay. Subsequently, the specific CRKP phages were isolated using the double agar layer method, where the four CRKP clinical isolates were used as the host system. **Results:** Altogether, 30 sewage samples were collected from different points of hospital treatment plant at the Hospital Universiti Sains Malaysia (Hospital USM). Each samples were screened with four different clinical CRKP strains, giving rise to a total of 120 screened plates. Lytic phages were isolated in 50 /120 (41.70%) of the screened plates. The diameter of isolated CRKP lytic phages ranged between 0.01-0.7 cm. The phage titer ranged between 6×10^3 - 1.6×10^9 plaque-forming units per milliliter (PFU/ml). **Conclusion:** The lytic phages were isolated in abundance from the hospital treatment plant and exhibited a wide range of inhibitions against the CRKP, indicating its therapeutic potential in the future. However, further studies are required to comprehend the process of in vivo phage-mediated selection.

Keywords: CRKP bacteriophage; MDR *K. pneumoniae*; phage isolation; sewage water

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Antimicrobial stewardship approach in reducing incidence of ESBL cases

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Background: With the increasing cases of multi-resistant organism infection, Antimicrobial Stewardship Programs (ASP) is an important tool in combating this rising challenges. The objective of this study is to review whether the approach of the reduction in usage of second and third generation cephalosporin group antibiotics reduces the incidence of ESBL *E.coli* and ESBL *Klebsiella pneumoniae* (KP) cases in Sabah Women and Children Hospital (SWACH) from 2021 until 2023. **Methods:** After discussion with the head of clinical services, the preferred empirical antibiotic of respective unit was switched to ampicillin-sulbactam or amoxicillin-clavulanic acid instead of second or third generation cephalosporin. ASP team actively surveillant and monitored the above mentioned antibiotic, cephalosporin usage would be prescribed only to pre-determined indications, while others will be actively switched to ampicillin-sulbactam and amoxicillin-clavulanic acid. This study summarized the usage of Injection second and third generation of cephalosporin group antibiotics from year 2021 to year 2023 and compare with the incidence of ESBL cases per 100 patients admission during the same period. Usage of pediatric antibiotic described in number of vials over total number of admission, while adult antibiotic usage described in Defined daily dose (DDD). Occurrence of ESBL cases described in total number of cases/100 patient admission. The trend will then compared to the baseline ESBL *E. coli* and KP in SWACH in the year prior this intervention. **Results:** For pediatric and adult O&G populations, we observed that the usage of overall cephalosporin group antibiotics showed a decreasing trend since year 2021 till year 2023 and a slight reduction in ESBL *E. coli* and KP was observed at the same period. However, in adult oncology group, despite overall reduction in usage of cephalosporin group antibiotic except injection cefepime, the rate of ESBL *E. coli* showed a slight increase. **Conclusion:** Coordinated efforts between stewardship programs and infection control are essential for reversing conditions that favor the emergence and dissemination of multi-drug resistant gram negative bacteria within hospital.

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Assessment of antibiotic prescribing quality through repeated point prevalence surveys in a Malaysian teaching hospital

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Introduction: Optimising antibiotic prescribing in hospitals through antimicrobial stewardship (AMS) initiatives is essential in addressing the