exposures. To determine the proportion of health workers with correct knowledge and practice in classifying solid medical waste and related factors at District 4 Hospital, Ho Chi Minh City. **Methods:** A cross-sectional study was conducted on 149 health workers at District 4 hospital in 2022. Self- administrated questionnaires including personal data, 50 knowledge questions and practice checklists for solid medical waste classification were used. Determine the relationship using the $\chi 2$ test, PR, and the 95% confidence interval. **Results:** Health staff have knowledge account for 87.25%; general practice 53,69%. Knowledge of color coding non-infectious hazardous waste accounts for less than 50%. Waste bin cleaning 9.4%, exposure reporting procedures 30.87%. The age group >30, the subclinical departments, the information sources from radio, and friends have a higher rate of practice correctly than the other group, $p < 0.05$. **Conclusions:** Health staff have correct knowledge account for 87.25%; correct practice account for 53.69%. Health facilities need to maintain training on solid waste classification knowledge, focusing on color coding, symbols, handling and responding to incidents of exposure to medical waste and occupational safety. Fully equipped with different means of communication to instruct, supervision classification, collection and transportation of solid waste to take timely remedial measures.

Keywords: classification; solid medical waste

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Infection rates, risk factors and microbial etiology of Cerebrospinal Fluid (CSF) shunt infections – a single centre prospective study from India

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Background/Objectives: CSF shunts are widely used in neurosurgery practice for temporary or permanent CSF diversion. Patients on CSF shunts are at risk of device-associated CNS infections particularly ventriculitis or meningitis. The study objectives were to delineate the risk factors and infection rates for various shunt procedures and their microbial etiology. **Methods:** This is a single center prospective cohort study. The study period was 2 years (October 2020- September 2022). Patients were categorised using IDSA criteria as Contamination or Colonisation or Infection. Device days were also collected from the Hospital information system (HIS) for calculation of infection rates. Microbial etiology was identified by culture of CSF and shunt catheter tips. Cox regression model was used to estimate hazard risk for various risk factors. **Results:** During the 2-year study period, 161 shunts were inserted.133 were ventriculo-peritoneal (VP) shunts, 19 were lumbo-peritoneal (LP) shunts, 6 were subduro-peritoneal (SDP) shunts, 2 were syringo- subarachnoid (SS) shunt and 1 cysto-peritoneal (CP) shunt. Hydrocephalus was the commonest indication for a shunt insertion (71.4 %). There were 8 VP shunt and 1 LP shunt infections during the study period. The average infection rates for VP and LP shunts were 6 and 5.2 per procedure, respectively. Gram negative bacteria caused most of the shunt infections (7/9, 77%). The most common organism causing shunt infection was *Klebsiella pneumoniae* (n=4, 44%), followed by *Staphylococcus aureus* (n=2, 22%). The risk factors which were independently associated with increased risk for shunt infection were Pre-OP ASA score >3 [HR:8.28, p - 0.013], presence of associated perioperative systemic [HR:3.89, p-0.01] or scalp infections [HR:3.53, p-0.005]. **Conclusion:** VP and LP shunt infection rates were similar in our study. *Klebsiella pneumoniae* was the commonest causative agent causing shunt infection. High Pre-OP ASA score and associated perioperative scalp or systemic infections were independent risk factors for shunt infection.

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The impact of hospital wide measures to reduce mupirocin resistance among methicillin-resistant *Staphylococcus aureus* in a Singapore hospital

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Introduction: Methicillin-resistant Staphylococcus aureus (MRSA) is a leading cause of healthcare associated infections. Colonization with MRSA increases the risk of subsequent nosocomial infection. The primary concern regarding widespread use of mupirocin is the emergence of mupirocin resistance. A prospective cross-sectional study in Singapore in 2013, found mupirocin resistance to be 31.6% in Changi General Hospital (CGH). Annual usage of mupirocin (g) in CGH was 36870 and hospital-onset MRSA bacteremia was 1.1/10,000 patient-days in 2013. **Objective:** To study the impact of hospital measures to reduce mupirocin resistance among MRSA by detection of mupirocin resistance in screening isolates. **Method:** Changi General Hospital is a 1000 bedded acute care hospital. Hospital wide measures were instituted in CGH to reduce mupirocin resistance in MRSA included a) universal body wash with Octenidine for all hospitalized patients in the wards with MRSA cubicles b) 2% mupirocin ointment removed from formulary (available for nasal decolonization only) A study was conducted on MRSA screening isolates from the Microbiology Laboratory between May and September 2019. These were obtained by swabbing nasal, axilla and groin on all newly admitted patients as part of an active surveillance program since 2013. The swabs were streaked onto MRSA^{ii}selective media plates which were incubated at 35 °C for 20 hours and stored at 4 °C. E-test was performed to determine the susceptibility and minimum inhibitory concentration (MIC) of MRSA isolates to mupirocin, oxacillin and vancomycin, following the CLSI guidelines for S. aureus. MPCR (multiplex polymerase chain reaction) assay was used for the simultaneous identification of *ileS*-2 (primers MupA and MupB) and mecA (primers MecA1 and MecA2). PCR amplification of *ileS*- 2 gene for high level mupirocin resistance and Mec A gene was performed on Touch thermal cycler. **Results:** 200 MRSA isolates were tested. E-test revealed 5 isolates were detected to be High Level mupirocin- resistant (2.5%) and 69 isolates were detected to be oxacillin-resistant (74%). The MPCR assay detected mecA gene in 100% and *ileS*-2 gene in 3 isolates (1.5%). **Conclusion:** Our study indicated the low prevalence of high level mupirocin resistance among MRSA screening isolates in 2019 in CGH. This suggested that the hospital wide measures to reduce mupirocin resistance were effective.

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Risk factors for Catheter-Associated Urinary Tract Infection (CAUTI) in sepsis patients at RSPAD GATOT SOEBROTO 2022: a quantitative study

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Background: Urinary tract infection (UTI) is the most dominant case, around 40% of healthcare-associated infections (HAIs). UTI related to

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