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Introduction/Objective: Bacterial resistance is a global public health challenge, requiring the development of effective control strategies. In 2021, an antimicrobial stewardship team was established at our institution to promote rational use through prescription review, evidence-based protocols, training, and indicator monitoring. In April 2024, a significant increase in ceftazidime+avibactam consumption was observed, a high-cost antimicrobial reserved for severe infections caused by carbapenem-resistant Enterobacterales. Therefore, the prescription audit process was revised, implementing prospective double checking.

Method: Institutional protocol review and implementation of prospective double checking of ceftazidime+avibactam prescriptions, with the first check performed by the Hospital Infection Control Committee and the second by the antimicrobial stewardship team. Prescription monitoring was carried out using an electronic tool, and the following parameters were evaluated: indication adequacy, treatment duration, antimicrobial consumption, and cost. In addition, immunochromatographic tests for rapid detection of bacterial resistance mechanisms, already implemented, had their indications expanded, optimizing microbiological result acquisition and antimicrobial use.

Results: In the pre-intervention period (January to April 2024), 41 patients were treated, totaling 948 vials (mean of 23 vials per treatment), with a total direct cost of R$ 757,452.00 (mean of R$ 18,474.44 per treatment). Consumption indicators were DOT of 6.54 and DDD of 4.91 per 1,000 patient-days. During the intervention period (May to August 2024), 28 patients were treated, with reduced consumption of 476 vials (mean of 17 vials per treatment) and total direct cost of R$ 380,324.00 (mean of R$ 13,583.00 per treatment). DOT and DDD indicators also decreased by 49% and 52%, to 3.31 and 2.35, respectively.

Conclusion: Implementation of this strategy promoted reduced consumption, especially through optimization of treatment duration. This intervention contributed to compliance with institutional protocols, possible reduction of selective pressure on microorganisms, and optimization of financial resources, demonstrating its effectiveness in antimicrobial stewardship in a hospital environment.

Keywords: Antimicrobial Stewardship, Bacterial Resistance to Antibiotics, Beta-Lactamase Inhibitor.

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736

EFFECT OF CLEANING AND DISINFECTION OF HIGH-TOUCH SURFACES ON ENVIRONMENTAL CONTAMINATION RATES BY MULTIDRUG-RESISTANT MICROORGANISMS IN INTENSIVE CARE UNITS: A MULTICENTER MULTIMODAL INTERVENTION STUDY

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Introduction: Multidrug-resistant microorganisms (MDR) can be found on medical equipment and surfaces near patients and may be related to hospital outbreaks. Frequent and adequate cleaning contributes to reduction of microbial load and MDR dissemination in healthcare services.

Objectives: To evaluate the impact of a multimodal intervention on professional adherence to cleaning practices and environmental contamination rates by MDR.

Methods: Quasi-experimental study conducted in six adult ICUs in Greater São Paulo, developed in three periods: pre-intervention (08/01/23–10/31/23); multimodal intervention (11/01/23–04/31/24); and post-intervention (05/01/24–10/31/24). During the first period, professionals maintained routine cleaning. The intervention included training, provision of cleaning supplies (one disinfectant solution per bed, disposable multiuse cloths), and feedback on cleaning assessment results. During this period, professionals participated in evaluation of cleaning performed by researchers. In the post-intervention period, implemented measures were maintained. Cleaning assessment used a fluorescent substance applied to 10 predefined high-touch points and evaluated with ultraviolet light. Cleaning was considered compliant when all marked points showed no fluorescence or substantial reduction of the fluorescent marker. Environmental contamination assessment involved cultures collected from the same 10 high-touch points. Samples were collected monthly from two beds per ICU.

Results: A total of 2,587 cleaning evaluations were performed. Mean adherence rates by study period were 15.67%, 51.33%, and 74%, respectively ($p < 0.001$). Environmental contamination rates were 14%, 6.8%, and 5.5%, respectively. There was a reduction in surface contamination by Acinetobacter baumannii from 9% to 3.5% ($p > 0.05$) and by Klebsiella

pneumoniae from 16% to 4.17% ($p < 0.05$) when comparing pre- and post-intervention periods. Bed rails were the surfaces most frequently contaminated by MDR.

Conclusion: Monitoring cleaning using fluorescent markers combined with a multimodal educational program contributed to improved professional cleaning practices and reduced environmental contamination rates by MDR, particularly K. pneumoniae.

Keywords: Intensive Care Units, Cleaning and Disinfection, Multidrug Resistance.

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737

EFFECTIVENESS OF SURGICAL SITE INFECTION PREVENTION BUNDLES IN CRANIAL NEUROSURGERY: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction/Objective: Surgical site infections (SSI) in neurosurgery are frequent and potentially preventable complications, with significant impact on morbidity, mortality, and hospital costs. This study aimed to evaluate the effectiveness of bundle implementation in preventing SSI in cranial neurosurgery.

Methods: A systematic review with meta-analysis was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology, including meta-analysis and meta-regression. The systematic search included controlled studies published between 2014 and 2024 that evaluated the application of SSI prevention bundles in patients undergoing cranial neurosurgery.

Results: The initial search identified 3,945 studies, of which 14 were included after application of selection criteria. The analyzed bundles encompassed pre-, intra-, and postoperative measures. Meta-analysis showed that adoption of SSI prevention bundles in cranial neurosurgery significantly reduced SSI rates, with OR 0.34 (95% CI 0.23–0.51; $p < 0.01$). In meta-regression results, presence of antimicrobial prophylaxis in the bundle was associated with OR 0.45 (95% CI 0.22–0.92; $p = 0.031$), while its absence increased SSI risk by 124.43%.

Conclusion: This systematic review and meta-analysis demonstrate that bundle implementation is an effective strategy to reduce SSI in cranial neurosurgery. Inclusion of antimicrobial prophylaxis as a bundle component was particularly impactful, being associated with a significant reduction in infection risk. These findings reinforce the importance of multimodal and standardized approaches in SSI prevention.

Keywords: Surgical Site Infection, Prevention, Bundle, Neurosurgery.

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738

FLOODING, INCIDENCE, AND LETHALITY OF LEPTOSPIROSIS IN SANTA CATARINA (2019–2024): DESCRIPTIVE ANALYSIS AND MAPPING BY MACROREGIONS

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Introduction/Objectives: Leptospirosis is an infectious disease caused by the bacterium Leptospira, with high lethality potential, high incidence, and strong influence of environmental factors on its transmission. This study analyzed the epidemiological scenario of leptospirosis in Santa Catarina (SC), between 2019 and 2024, considering the different macroregions and the occurrence of floods, with the objective of identifying the areas with the highest incidence and understanding the influence of environmental factors on infection.

Methodology: Ecological study using data on cases and deaths from leptospirosis, and the presence of water/mud/flooding associated with the case, in the macroregions of SC, between 2019 and 2024, based on SINAN notifications via DATASUS. Incidence and lethality per 100,000 inhabitants were calculated using IBGE population data. For spatial analysis, a thematic map of the macroregions was built in Datawrapper. The association between floods and cases was verified using the chi-square test ($p < 0.05$).

Results: The macroregions with the highest incidence rates were Serra Catarinense (27/100,000 inhabitants) and Vale do Itajaí (14/100,000). The highest lethality rates occurred in Serra Catarinense, Meio-Oeste, and Grande Oeste, at 2%. The average incidence rate in the state was 10.53/100,000 inhabitants/year, and overall lethality was 1.12%. The presence of water/mud/flooding was associated with at least 13% of cases, being significantly higher in Vale do Itajaí (34.2% of cases; $X^2 = 74.2$; $p < 0.001$).

Conclusion: The analysis identified Vale do Itajaí and Serra Catarinense as the macroregions with the highest incidence, and Serra Catarinense, Meio-Oeste, and Grande Oeste with the highest lethality rates. The findings reinforce the influence of extreme climatic events associated with characteristics of relief, urbanization, infrastructure, and access to health services on the transmission of leptospirosis. Despite