

A probe into probe use: decontamination challenges of point of care ultrasound (POCUS)

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Background: Technological advancements have made ultrasound devices more portable and user-friendly. Even when ultrasound machines and probes are visibly clean, clinically important pathogenic organisms have been grown from them (Shokoohi et al, 2015). Ultrasound machines could therefore serve as a fomite for pathogens known to cause healthcare-associated infections. Thorough cleaning and disinfection of ultrasound equipment greatly reduces the microbial burden and lessens the chance of clinically important infections. However, studies indicate suboptimal cleaning practices and a lack of training among ultrasonographers [Westerway et al 2019]. **Aims and Objectives:** To assess the standard of ultrasound/probe cleaning within the hospital at POCUS and to benchmark it against hospital policy. Assess the level of probe reprocessing training received by operators. Develop and implement interventions based on targeted need assessment and evaluate their effectiveness. **Method and Outcome:** A study of ultrasound/probe reprocessing practices identified serious concerns. The cleaning of USG probes was suboptimal for critical, semi-critical, and non-critical probes as per the Spaulding classification. The compliance level for tracking and tracing was unacceptable. Lack of knowledge, inadequate access to cleaning supplies and equipment, and time constraints were primary barriers to guideline-based disinfection. Interventions were guided by the audit results. To better educate Ultrasonographers, an educational tool was created with best practices for USG machine and probe cleaning and disinfection, an instructional video, a summary of cleaning steps, and links to best-practice guidelines. We were able to significantly improve the thoroughness of cleaning ultrasound machines and probes by using targeted interventions. **Conclusion:** For ultrasound-guided procedures, non-compliance implies greater risks. The results of this study confirm the concern expressed by a global survey of ultrasound users which suggested that ultrasound cleaning procedures are inadequate and that users are unaware of recommended practices.

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Catheter related blood stream infection (CRBSI) rate reduction program in a cardiac intensive care unit in Kuala Lumpur, Malaysia

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Introduction: Catheter Related Bloodstream Infection (CRBSI) continues to be a major healthcare associated infection in Intensive Care Units. The necessity of Central Venous Catheters (CVC) for critically ill patients creates a significant challenge in reducing the CRBSI rates. This challenge is further amplified by the extended duration of CVC use required for many of our patients due to complex treatment regimens, hemodynamic monitoring needs, and the presence of high comorbidity factors. The purpose of this study was to review the impact of a 12-month comprehensive CRBSI reduction program and a new Central Line Maintenance Bundle (CLMB) on reducing CRBSI rate in a cardiothoracic surgical ICU. **Case Presentation:** Observational study carried out and yearly CRBSI rate compared before and after implementation of the program. The program consists of one-month hand hygiene campaign conducted every quarterly throughout 2021, application of disinfectant cap (Curos) for all long staying patients, application of Chlorhexidine tegaderm for newly inserted central line, application of no sting barrier film at CVL sites and Adenosine triphosphate test on random surfaces for cleanliness. Besides, the existing

CRBSI Bundle was separated into CRBSI Insertion and Maintenance Bundle. The new CRBSI Maintenance Bundle consists of HH, hub care, site care, tubing care and daily review. Infection control link nurses were appointed every shift to ensure adherence to the infection control protocol. The CRBSI rate before and after the program was compared. **Discussion:** At the beginning of the study, the CRBSI rate was 4.8 per 1000 catheter days. The CRBSI rate reduced to 3.3 per 1000 catheter days, at the end of the study. The overall reduction of CRBSI rate was 31%. Conclusion Implementing a comprehensive CRBSI reduction program and a new Central Line Maintenance Bundle was able to significantly reduce catheter related blood stream infection in ICU.

Keywords: Catheter Related Blood Stream Infection; Central Line Maintenance Bundle

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Reducing the incidence of Hospital-Acquired Multidrug- Resistant Acinetobacter Baumannii (HA-MDRAB) in the intensive care unit (ICU) of a teaching hospital through multimodal environmental cleaning strategies

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Introduction: HA-MDRAB infections and colonizations are known to pose an urgent threat to patients admitted to ICUs worldwide and are difficult to treat, which leads to significant mortality and morbidity. However, multimodal environmental cleaning strategies are effective for MDRAB prevention and control. **Objective:** The objective of this study is to evaluate the impact of multimodal environmental cleaning strategies in reducing HA-MDRAB rate in ICU in a tertiary teaching hospital, Universiti Malaya Medical Centre (UMMC). **Methods:** This is a retrospective analysis of patients admitted to an adult ICU over three periods (P); P1 (January 2018 - December 2019), P2 (January 2020 - June 2022), and P3 (July 2022 - December 2023). The total number of HA-MDRAB infections and colonizers and total patient days in ICU were collected monthly and HA-MDRAB rate per 1000 patient-days was analyzed. The five elements of infection prevention and control (IPC) multimodal strategies involving multidisciplinary teams were integrated with environmental cleaning since 2018, including tailored in-house training for environmental service staff (EVS), cleaning approach, techniques and product used, hospital-wide environmental cleaning policy, use of environmental audit checklist and giving frequent feedback to the EVS, and communication strategies to engage EVS and key stakeholders in order to promote organizational safety culture. **Results:** HA-MDRAB rates in ICU increased by 23% from 7.20 (P1) to 8.85 (P2) per 1000 patient days and decreased to 4.94/1000 patient days (P3) after the reinforcement of environmental cleaning strategies. During P2, the rates were higher from July - December 2021 (15.8/1000 patient days). **Conclusion:** Increase in HA-MDRAB rates was likely due to changes in infection control measures during COVID- 19 pandemic such as extensive workload compromising the compliance to environmental cleaning among EVS. With reinforcement of the environmental cleaning multimodal strategies, HA-MDRAB incidence reduced, emphasizing the importance of adherence to IPC practices in environmental cleaning.

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