1210. Investigating a Staphylococcus aureus Outbreak in a Clinical Care Unit: What Is the Role of the Mobile Phones?

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Background. Staphylococcus aureus (Sa) outbreaks are serious infections that if not controlled in time can be life-threatening. The aim of this study was to describe the investigation and control of a Sa outbreak in an intensive care unit including analysis of MP.

Methods. During a microbiological research of MP conducted in December 2018 in a clinical intensive care unit (ICU) of a tertiary university hospital two patients had an MRSA infection. Since this unit had not reported MRSA infections during the last year it was recognized as an outbreak. The CDC criteria was applied to define MRSA colonization and infection. Hand hygiene (HH) adherence in this unit was 47%, it has 9 beds and 30 Healthcare professionals (HP). Nasal Swab (NS) of all the HPs and of the patients in the same unit as well. HP’s MP were also analyzed. The samples were subjected to MALDI-TOF (Biomerieux), phenotypical tests, PCR for detection of gene mecA and meca, pulsed-field gel electrophoresis (PFGE), and whole-genome sequence to access resistance, virulence profile and sequence type. Feedback of microbiology results, reinforcement of hand hygiene and MP cleaning was discussed with the unit staff.

Results. A total of 34 samples were collected, 25 were from the patients in the same unit as well. HP’s MP were also analyzed. The samples were subjected to MALDI-TOF (Biomerieux), phenotypical tests, PCR for detection of gene mecA and meca, pulsed-field gel electrophoresis (PFGE), and whole-genome sequence to access resistance, virulence profile and sequence type. Feedback of microbiology results, reinforcement of hand hygiene and MP cleaning was discussed with the unit staff.

Conclusion. The outbreak was controlled using simple measures (feedback, reinforcement of HH and MP cleaning). The ST398 from the MP has already been subjected to MALDI-TOF (Biomerieux), phenotypical tests, PCR for detection of gene mecA and meca, pulsed-field gel electrophoresis (PFGE), and whole-genome sequence to access resistance, virulence profile and sequence type. Feedback of microbiology results, reinforcement of hand hygiene and MP cleaning was discussed with the unit staff.

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1211. Microbiological Evaluation of Mobile Phones and Hands of Healthcare Professionals in Two Intensive Care Units in a Brazilian University Hospital

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Background. Healthcare-associated infections (HAIs) are a worldwide concern because of their high morbidity, mortality, and associated costs. Mobile phones (MP) are an important tool work in the healthcare setting, but they can be a reservoir of nosocomial pathogens if not carefully cleaned and cause re-contamination of the healthcare professional’s (HCP) hands. We aimed to evaluate bacterial colonization of HCP’s hands and their respective MPs.

Methods. A cross-sectional study was performed in two Intensive Care Units (ICUs), an internal medicine and a burn unit, of a Brazilian tertiary university hospital. These units were chosen because of their hand hygiene (HH) compliance. We assessed HH and MP handling practices by an electronic inquiry and collected samples from the dominant hand (DH) by the sterile bag technique and of MPs by moistened sterile swab. MALDI-TOF was used for bacterial identification and Dilution Agar (DA) was used to screen Gram-negative bacteria (GNB) susceptibility to carbapenems and colistin.

Results. Forty-seven HCPs were evaluated; of whom, 30% were medical residents, 19% nurses, 17% nurse-technicians, 13% pharmacy technicians, 13% cleaning staff, and 4% radiology technicians. Overall, 85% of HCPs reported use of MP at work, 26% had never cleaned it, and 34% reported optimal HH compliance practices. All of them believed that MPs can have HAIs agents. DH culture showed 94% of colonization and the most common Gram-positive bacteria (GPB) and GNB were S. epidermidis (n = 17/44) and A. baumannii complex (n = 14/44), respectively. MP were colonized in 89% of the cases and the most common GPB and GNB were S. epidermidis (n = 16/42) and Pseudomonas spp (n = 9/42), respectively. Overall, in the screening 38% of GNB were resistant to meropenem and 22% to colistin. A. baumannii was the most common meropenem (n = 4) and colistin (n = 2) resistant GNB. In the two units, 32% of HCPs had the same microorganisms species isolated in the MP and in the DH (Table 1).

Conclusion. There was a high rate of bacterial colonization on the MP and DH of HCPs and some of these bacteria were carbapenem or colistin resistant. A policy for MP handling in the healthcare setting should be implemented in order to avoid cross-contamination between the MP and the hand of HCPs.

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1212. Environmental Contamination Characterization of Two Outpatient Clinics

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Background. Although antimicrobial resistance remains a major public health concern, the extent of environmental contamination, particularly in the healthcare environment, is not well understood. This study characterizes the level of environmental contamination in the OR's and Treatment Rooms of a primary care clinic and a dermatology clinic.

Methods. The study was performed by a single microbiologist who collected environmental samples in all settings. Samples were collected using sterile cotton swabs and sent to the microbiology lab in the hospital for culture. The samples were distributed among three media: selective, non-selective, and fungal. The percentages of positive samples were calculated for each setting.

Results. The results showed that the OR's had a higher percentage of positive samples compared to the Treatment Rooms. The percentage of positive samples in the OR's was 34%, while in the Treatment Rooms it was 22%. The most common organisms identified were Staphylococcus aureus and Pseudomonas aeruginosa.

Conclusion. The results of this study indicate that the OR's have a higher level of environmental contamination compared to the Treatment Rooms. This finding underscores the importance of implementing effective environmental control measures to reduce the risk of cross-contamination.

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Background. Environmental contamination in outpatient clinics is poorly understood.

Methods. We performed a microbiological analysis of surfaces in wound and pulmonary outpatient clinics at a tertiary care center. Cultures were obtained with pre-moistened cellulose sponges from three locations (Exam bed/chair, patient chair, physician area/chair) before and after clinic days. Sponges were combined with 1% Tween20 PBS and mixed in the Seward Stomacher. The homogenate was centrifuged and all but 5 mL of the supernatant was discarded. Samples were plated on Sheep’s blood agar and selective media for S. aureus, Enterococcus spp. and Gram-negative bacteria. CFU was determined by counting the number of colonies on each plate and using dilution calculations to calculate the CFU of the original ~5 mL homogenate. The total sample areas in the wound and pulmonary clinic were 12,735 cm² and 16,400 cm², respectively.

Results. A total of 300 samples were obtained over 90-days. Median total room CFU was 7,918 (IQR 2,939–18,855) (Figure 1). Median CFU for the examination area, patient area and physician areas were 2090 (537–10508), 1524 (573–4605) and 960 (371–2183), respectively (Figure 2). The proportions of samples positive for S. aureus, Enterococcus spp. and Gram-negative bacteria were 5.0, 3.3 and 7.7%, respectively (Table 1). In general, median total CFU increased during the clinic day (median CFU before the clinic day 6883 (2937–14983) vs. median after clinic day=10351 (3484–21263) (Figure 3). Environmental bioburden was higher in the wound clinic than the pulmonary clinic (median 18206 CFU [IQR 10048–25037] vs. 3764 [IQR 1452–6671], P < 0.001).

Conclusions. Outpatient clinic rooms were contaminated with clinically important pathogens. Contamination varied by environmental location and increased as the clinic day progressed. Higher contamination was seen in the wound clinic possibly due to higher patient volume vs. increased environmental contamination that occurs while giving wound care. Wound care clinics may need to focus on more detailed cleaning to reduce environmental contamination and the risk of pathogen transmission in at-risk patients.

Table 1

|                  | Combined (%) | Wound Clinic (%) | Pulmonary Clinic (%) |
|------------------|--------------|------------------|----------------------|
| S. aureus-positive samples | 15 (%)      | 8 (%)            | 7 (%)                |
| Enterococcus-positive samples | 10 (%)      | 7 (%)            | 3 (%)                |
| Gram-negative-positive samples | 23 (%)      | 21 (14)          | 2 (1)                |

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1213. How Often Is Portable Equipment Cleaned in an Acute Care Setting?  
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Background. Portable medical equipment that is shared among patients may frequently become contaminated with healthcare-associated pathogens. Cleaning of these devices may be suboptimal. Here, we aim to determine how frequently mobile equipment is cleaned after being used in an acute care setting.

Methods. Frequency of use and cleaning practices were surveyed by observation. Thirty pieces of mobile equipment from 4 wards including workstations, EKGs, vital signs monitor, and doppler ultrasounds were disinfected with a sporicidal disinfectant. Point prevalence sampling showed that 27.5% of mobile equipment had one or more pathogens on them. At day 5, only 30% of equipment marked with FGM had been cleaned and after 20 days, 23% of marked mobile equipment remained uncleaned (figure). 4 pieces of mobile equipment traveled from their original ward to a different ward.

Results. Mobile equipment was infrequently cleaned and moved readily from ward to ward. In 9 of 10 observations, mobile equipment was used and not cleaned after use. Point prevalence sampling showed that 27.5% of mobile equipment had one or more pathogens on them. At day 5, only 30% of equipment marked with FGM had been cleaned and after 20 days, 23% of marked mobile equipment remained uncleaned (figure). 4 pieces of mobile equipment traveled from their original ward to a different ward.

Conclusion. Our findings demonstrate that portable equipment is frequently used and infrequently cleaned. These items can become contaminated with clinically relevant pathogens. We also saw that portable equipment frequently traveled from ward to ward. There is potential for contaminated portable equipment to serve as a vector for dissemination of pathogens. There is a need for effective strategies to disinfect portable equipment between patients.

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