Background. Various studies have shown the increased risk of acquiring a multidrug-resistant organism (MDRO) from a room previously occupied by a confirmed MDRO patient. The effectiveness of environmental services (EVS) personnel is inconsistent and less than half of disinfected surfaces pass common environmental detection methods. Whole room ultraviolet-C (UVC) disinfection has been widely studied throughout the literature for its ability to inactivate and direct UVC to specific areas has not. This study examines the efficacy of a targeted UVC device to decontaminate surfaces with and without EVS intervention.

Methods. Fifty-five random high touch point surfaces across a tertiary care hospital were assessed for aerobic colony counts (ACC) after discharge. Twenty-six of the surfaces were disinfected by EVS according to hospital protocol and retested. All surfaces were then treated using a targeted UVC device for 5 minutes with articulating and positionable arms at a distance of 18–24 inches and retested.

Results. The average ACC on all tested surfaces after discharge was 8.82 CFU/cm². Surfaces disinfected by EVS showed a 55% reduction in ACC to 4.06 CFU/cm² while surfaces treated with targeted UVC resulted in a 98% reduction to 0.06 CFU/cm². However, there was a 98% reduction in ACC from 9.89 CFU/cm² after discharge to 0.04 CFU/cm² with EVS disinfection followed by targeted UVC treatment. Lastly, there was a 92% reduction in ACC from 7.68 CFU/cm² after discharge to 0.65 CFU/cm² with only targeted UVC treatment. All outcomes were significantly different (P < 0.01) when compared with after discharge and after EVS disinfection.

Conclusions. In the process of decontamination, a targeted UVC increases the decontamination effectiveness of EVS after discharge while potentially reducing the risk of infection for the next patient and decreasing the likeliness of transmitting an infected agent acquired on a healthcare worker's hands.

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509. Impact of Multidisciplinary Team on Duodenoscope Reprocessing to Minimize Infections with High Risk Organisms

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Background. Duodenoscopes used for ERCP and EUS have complex designs, making reprocessing challenging. Media reports of high-risk organisms such as Carbapenem-resistant Enterobacteriaceae (CRE) outbreaks linked to duodenoscopes heightened awareness about reprocessing. Infections have been linked to the cleaning of the scope, its components, elevator, use of unsterile water and the storage of scopes. Difficulty in preventing infections associated with duodenoscopes may be due to lack of communication between multiple departments involved in the process. Creation of a Multidisciplinary Team (MDT) with clear roles, responsibilities was studied to determine the impact of a Multi-disciplinary Team (MDT) on the process of duodenoscope disinfection.

Methods. Reprocessing of Olympus TJF-Q180V duodenoscopes was studied at a tertiary academic medical center (401 beds). Surveillance cultures of the duodenoscope tip (including forceps elevator) were evaluated from May 2016 to April 2017. Infections have been linked to the cleaning of the scope, its components, elevator, use of unsterile water and the storage of scopes. Difficulty in preventing infections associated with duodenoscopes may be due to lack of communication between multiple departments involved in the process. Creation of a Multidisciplinary Team (MDT) with clear roles, responsibilities was studied to determine the impact of a Multi-disciplinary Team (MDT) on the process of duodenoscope disinfection.

Results. Prior to creation of the MDT, the percent of duodenoscope surveillance cultures (n = 17) with LCB was 23.5% (n = 4) and HCB was 29.4% (n = 5). After implementing MDT, cultures (n = 83), with LCB decreased to 4.82% (n = 4) and HCB decreased to 4.82% (n = 4). Additionally for the last 4 months, we have not identified any HCB. Identified opportunities include (not limited to) improved communication; hand hygiene, improved storage of scopes and containment of respiratory secretions.

Conclusion. MDTs with clear roles are instrumental in eliminating HCB during reprocessing of duodenoscopes.

Disclosures. All authors: No reported disclosures.

150. Detecting Colonized Patients, Training Healthcare Workers and Adequate Disinfection as Effective Strategies for Infections Control by Multidrug-Resistant Microorganisms During the Transfer to a New Hospital Area at a General Hospital in Mexico City

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Background. Emergence and spread of multidrug-resistant organisms (MDROs), in hospitals require interventions for their control, especially when transfer to a new hospital area.

Methods. We implement a strategy during transfer of our Hospital to a new hospital area in order to reduce the risk of transferring MDROs during 2015. Based on 3 measures: (1) Patients: we obtained rectal swab samples from all patients, in cases colonized by MDROs, we use contact precautions, and wasn’t allowed to move to the new area. (2) Healthcare worker (HCW): we develop an “Infections Control Course”, with pre and post test. (3) Environment: biomedical equipment and furniture were decontaminated by adenosine triphosphate bioluminescence (ATP method) before and after disinfection with hydrogen peroxide and silver (H₂O₂) with a whole room fogging system during transfer, if the equipment did not obtain proper ranges, it was not allowed move to new area. These strategies were accompanied by an antimicrobial stewardship program implemented in early 2015.

Results. We analyzed 78 rectal swab samples between September and November 2015, 11.5% of patients were colonized by MDROs (45% Pseudomonas, Acinetoberea, 33% Acinetobacter baumanni, 22% Vancomycin-resistant Enterococcus). 1,039 HCW took the course, with pre-test mean score of 63.7, post-test 81.7. We analyzed 454 records of surfaces of biomedical equipment and furniture (227 before, 227 after disinfection), during the transfer, 30 “loads” of room fogging system were recorded, using 6.6 gallons of H₂O₂ (831 ml per load). We obtained before disinfection a mean of 627.4 relative light units (RLU) and after disinfection a mean of 2014.4 RLU, we achieved a reduction of 65.6% (P < 0.0001). The antimicrobial stewardship program shows a reduction in defined daily dose compared with previous year (ertapenem 73.6 vs. 52.19, vancomycin 55.03 vs. 44.08, meropenem 64.75 vs. 35.17, caspofungin 6.7 vs. 5.53, colistin 23.13 vs. 6.33). At July 27, 2016, we reported 288 days without MDROs in the new area with a reduction of 77.3% of A. baumanii isolates, unfortunately we had an outbreak of Clostridium difficile in new area.

Conclusion. The combination of strategies that include: detection of colonized patients, training of HCW, high-level disinfection and antimicrobial stewardship are effective, and should be applied, and sustained.

Disclosures. All authors: No reported disclosures.

511. Next-Generation UV: Evaluation of a Robotic Ultraviolet-C Room Disinfection Device

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Background. Mobile ultraviolet-C (UV-C) light room decontamination devices are commonly used as an adjunct to standard cleaning in healthcare facilities. However, the efficacy of UV-C is significantly reduced at increased distance from the device and by shadowing.

Methods. In hospital rooms, we compared the efficacy of a standard UV-C disinfection device operated in one location and a robotic UV-C device with 3 adjustable lamps that automatically navigates around the patient room to minimize the distance from the device and shadowing. The test organisms were methicillin-resistant Staphylococcus aureus (MRSA) and Clostridium difficile spores in 5% fetal calf serum on steel disk carriers that were placed in multiple locations in hospital rooms and exposed to 10 minute UV-C cycles. For the robotic device, we evaluated a 10-minute stationary cycle positioned adjacent to the bed and a mobile cycle in which the unit was progrmmed to navigate the room.

Results. As shown in the figure, the robotic device operated in a stationary position was as effective as the standard device against organisms in close proximity to the device (2–3 feet from the device), but significantly less effective at greater distances. However, operating the robotic device with the mobile cycle significantly improved performance, resulting in a ≥3.0 log reduction in C. difficile spores and MRSA at all sites tested.

Conclusion. A robotic UV-C device programmed to automatically navigate the room was effective in reducing contamination at sites throughout the room.

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