1146. Effectiveness of Ultraviolet Irradiation on Candida auris: A Laboratory Study
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Background. Candida auris is a multidrug-resistant yeast which persists on healthcare surfaces for prolonged periods of time and is an emerging pathogen in hospitals. It has been linked to healthcare-associated infection (HAI) through surface transmission. Mobile ultraviolet (UV) light emitting devices from mercury sources have been shown to be effective in reducing C. auris bioburden but require prolonged exposure. In this study, we demonstrate the efficacy of an UV emitting device used in our hospital for terminal disinfection on C. auris.

Methods. Two C. auris strains (AR-381-CAU-01 and CAU-02) isolated from Centers for Disease Prevention and Control (CDC) were used along with a Candida albicans (C. albicans) strain. An organism load of 10 μL containing 107 colony forming unit (CFU) was spread on a 20-mm diameter stainless steel coupon and exposed to the UV source from a pulsed xenon device at 5 feet distance and 4 feet height for 5, 10, and 30 minutes. Killing efficacy in terms of log reduction was calculated in comparison to untreated control coupons.

Results. Mean CFU log10 reduction for C. albicans, CAU-01, and CAU-02 was 0.547, 1.051, and 0.932 at 5 minutes; 1.412, 1.975, and 1.887 at 10 minutes; and 2.639, 3.971, and 4.145 at 30 minutes, respectively. Figure 1 describes the mean log10 reduction as well as the minimum and maximum log reduction by isolates.

Conclusion. Our study demonstrates the UV from a pulsed xenon device is effective in reducing the C. auris on stainless steel coupons. Similar to previously published results, reduction of C. auris by other UV sources, extended exposure is required to achieve a higher log reduction of C. auris. We did not have any C. auris clinical infections to assess efficacy of UV on HAI reduction.

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1147. Pseudo-Outbreak of Clostridium paraputrefaciens Related to Anaerobic Tent Contamination
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Background. Over a 2-month period, eight patient cultures in our clinical microbiology laboratory were positive for Clostridium paraputrefaciens, an uncommon spore-forming microbe. The possibility of a pseudo-outbreak related to contamination in the laboratory’s anaerobic tent was considered.

Methods. This study occurred at a 505-bed tertiary care university-affiliated teaching hospital. Patient samples were cultured and evaluated following standard protocols, and isolates of C. paraputrefaciens were identified using matrix-assisted laser desorption ionization-time of flight mass spectrometry (MALDI-TOF MS). To identify additional cases, MALDI-TOF MS testing reports were manually reviewed and matched to patient records. Concurrently, the laboratory’s anaerobic tent was sampled after cleaning with isopropyl alcohol (and later with bleach or sporicidal disinfectant) matched to patient records. Concurrently, the laboratory’s anaerobic tent was sampled after cleaning with isopropyl alcohol (and later with bleach or sporicidal disinfectant) matched to patient records. Additionally, the laboratory’s anaerobic tent grew (n = 8) and the anaerobic tents of 2 patients were positive for C. paraputrefaciens. PFGE analysis revealed all patient and anaerobic tent isolates to be indistinguishable, suggesting that they originated from a common source. Growth of the organism from patient samples was therefore regarded as potential contamination. Prior to this, six of the eight patients received antibiotics related to this positive culture and had Infection Disease consultations. Providers of the patients were contacted regarding the contamination issue. The anaerobic tent manufacturer was consulted and ultimately recommended using Peridox Sporicidal Disinfectant. Six months later, the tent was re-sampled and did not yield positive cultures.

Conclusion. A pseudo-outbreak of the uncommon organism C. paraputrefaciens was related to insufficient disinfection practices of an anaerobic culture tent. This had negative effects on our institution and patient care in terms of cost, time, and unnecessary treatment. The use of sporicidal disinfectant has since proven effective to prevent contamination from spore-producing microbes.

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1148. Reduction of Blood Culture Contamination Rates by an Altered Sampling Protocol: Single-Center, Prospective, Randomized, Controlled, Open-Label Trial
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Background. Contaminated blood cultures remain a challenge for patients, physicians, and microbiology laboratories, often leading to unnecessary antibiotic treatment. One approach to reduce contamination is to avoid culturing the initial blood sample that can contain a contaminated plug of skin from the needle stick. Initial specimen diversion technique (ISDT) was associated with decreased rate of blood culture contamination when applied in a randomized controlled trial on vacuum blood collection tubes or a designated device. The aim of this study was to test ISDT in real-life, using externally nonsterile regular vacuum sample tubes for the diversion, by any medical personnel taking blood cultures.

Methods. Adults from whom an emergency doctor planned to take blood cultures and additional blood chemistry tests, in the same venous puncture, were eligible and were randomly assigned to intervention or control arms. The hospital’s standard procedure for blood drawing was maintained, except that in the intervention arm, blood was aspirated to a green-capped tube, which was used for regular biochemistry tests, prior to the blood culture.

Results. Four hundred twenty-three blood cultures were obtained from 404 patients. Of 404 (11.1%) of the blood cultures, 45 yielded microbial growth, with 31 (7.7%) regarded as true pathogens and 14 (3.5%) as contaminants. Detection of true bloodstream infection was similar by the two methods, 16/181 (8.83%) with the ISDT, and 15/223 (6.72%) using the standard method. The ISDT was associated with a significantly less isolation of presumed contaminants compared with the standard method, 2/165 (1.2%) vs. 12/208 (5.76%), P < 0.02. Conclusion. ISDT, by any medical personnel, through altered order of test tube vs. blood culture sampling significantly reduced contamination of blood cultures without loss of diverted blood.

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1149. Environmental Disinfection With Photocatalyst as an Adjunctive Measure to Control Multidrug-Resistant Organisms Transmission: A Prospective Cohort Study in High Incidence Setting
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Background. Hand hygiene and isolation precaution are often difficult to sustain, requiring additional measure to control multidrug-resistant organisms (MDRO) transmission. It was suggested that continuously antimicrobial surfaces could offer superior control of surface bioburden. We sought to decide the efficacy of photocatalyst antimicrobial coating in reducing MDRO acquisition in high incidence setting.

Methods. At a institute where used to have high incidence rate of methicillin-resistant Staphylococcus aureus (MRSa), we performed prospective cohort study involving patients hospitalized in medical (n = 660) unit. Five months of intervention (where routine infection control measures were maintained) data were compared with 5 months of postintervention (after titanium dioxide-based photocatalyst were coated on high touch surfaces) data. The acquisition rate of MDROs and the rates of hospital acquired bloodstream, stream infection (SSI), pneumonia, urinary tract infection (UTI), and Clostridium difficile-associated disease (CDAD) were compared using Cox proportional hazards regression analysis.

Results. A total of 621 patients were included. There was significant decrease in MRSa acquisition rate after photocatalyst antimicrobial coating (hazard ratio, 0.37;