1153. UV-C Technology Is an Effective Adjunct to Terminal Cleaning in Environmental Pathogen Reduction in a Tertiary Pediatric Hospital
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Background. Effective environmental surface cleaning plays a vital role in reducing transmission of hospital-acquired infections. There remains a paucity of data in the pediatric literature regarding environmental pathogen reduction utilizing UV-C light. The objective of this study was to evaluate the reduction of environmental pathogens using UV-C light (Clorox Optimum-UV) as an adjunct to terminal cleaning in a free-standing tertiary pediatric hospital.

Methods. Upon patient discharge, a subset of patient rooms were tested for pathogens. Surface swabs were collected from high touch surfaces (call button, telemetry monitor, door handle, flush handle of toilet, faucet, bed rail, phone, keyboard pad, mouse, side table, dresser, and light switch). After terminal cleaning of the room, per hospital protocol the Clorox Optimum-UV completed one or two cycles of 5 minutes each depending on the duration of the room. Post-UV-C surface swabs were obtained from the same high touch areas in the room. Total colony count was reported for each of the surfaces swabbed. Swabs were streaked onto non-selective agar and incubated at 30-35°C for 72–96 hours. Mean plate colony count was determined manually and reported as CFU/swab. Data analysis was performed in Minitab 18.1. Fisher least significant difference (LSD) test was used to describe the difference between total bacterial counts at each time point (Pre-clean: dirty room; Post-clean: pre-UV-C/ post-terminal clean, Post-UV: post-UV-C light cycle).

Results. Mean total colony counts prior to cleaning the room was 92.3 CFU (33 surfaces). Pre-clean was 45.6 CFU and post-UV-C light 5.8 CFU (64 surfaces). Total bacterial counts are represented in Graphs 1 and 2. Upon multivariate analysis, the single explanatory variable for the differences seen in the means of total bacterial counts (P = 0).

Conclusion. Our study demonstrates that UV-C disinfection is a highly effective adjunctive cleaning method with standard terminal cleaning to reduce bacterial burden from environmental surfaces.

Graph 1: Total Bacterial Counts (CFU) at each timepoint of surface sampling.

Graph 2: Total Bacterial Counts (CFU) with 95% Confidence Intervals at each timepoint of surface sampling.
Conclusion. The current state of room movement with CDI patients is suboptimal, resulting in increased infection risk for subsequent patients. A multi-faceted intervention to address this problem is essential to achieve an optimal goal of 1–2 rooms per hospital stay for a CDI patient. Quality improvement projects include (1) notification of patient movement to nursing leadership, (2) alerts to nursing supervisors of potential CDI patients before room transfer, and (3) earlier diagnosis of community-onset C. difficile.

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1156. Observation of Stethoscope Sanitation Practices in an Emergency Department Setting

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Background. Nosocomial infections pose significant risk to patients and hygienic standards. Stethoscopes are among the most frequently touched objects in the healthcare environment. Studies have shown that stethoscopes harbor pathogens, which can be transferred to patients when proper sanitary measures are not taken. Survey-based studies have mostly assessed stethoscope hygiene, but they may not accurately represent cleaning practices. This study aimed to accurately assess cleaning practices through observation of stethoscope cleaning and hand hygiene among medical providers in an emergency department setting.

Methods. Four hundred twenty-six provider–patient encounters were observed in the emergency department of the VA San Diego Healthcare System. The frequency and methods of stethoscope and hand hygiene practices were anonymously observed and recorded. Stethoscope hygiene was recorded during and after each encounter if cleaning took place for at least 15 seconds. Hand hygiene data were also gathered before and after each encounter. Data analysis was performed to determine the frequency of these practices.

Results. Of 426 encounters, 115 involved the use of a personal stethoscope. In 15 of 115 encounters (13.0%), the provider placed a glove over the stethoscope before patient contact. Following patient interaction, 13 of 115 encounters (11.3%) involved stethoscope hygiene with an alcohol swab. Stethoscope hygiene with water and hand towel before patient interaction was observed in 5 of 115 encounters (4.3%). Hand sanitizer use or hand washing was observed in 213 of 426 encounters (50.0%) before patient interaction. Gloves were also used prior to patient interaction in 206 of 426 (48.4%) encounters, some overlapping with those who used hand sanitizer or washed their hands. Hand sanitizer or hand washing was used in 332 of 426 encounters (77.9%) after patient interaction.

Conclusion. Only 11.3% of encounters involving the use of a personal stethoscope had stethoscope sanitation with an alcohol swab. In 43.7% post-encounters, there was an attempt to clean stethoscopes with water and towel. Rates of appropriate hand hygiene were also lower than expected. Stethoscope and hand hygiene standards need to be raised to reduce infection risk and further studies need to be conducted to set guidelines for adequate stethoscope sanitation.

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1157. Optimal Isolation Periods Based on Time Interval to Elimination of Scabies After Topical Agent in the Real Clinical Practice

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Background. The diagnosis of scabies was median 4 days (IQR, 2–14). Median isolation period was (Interquartile range [IQR], 2–3). Time interval between the onset of symptoms and the diagnosis of scabies was median 4 days (IQR, 2–14). Median isolation period was 13 days (IQR, 8–15). Dermatologist confirmed successful treatment of 16 patients, the median time until confirmation was 15 days (IQR, 8–17). Three patients discontinued isolation before dermatologist's confirmation. After re-evaluation by a dermatologist, one of the three was re-isolated due to persistent scabies infestation.

Conclusion. Scabicides are highly efficacious, but repeated microscopic examination for confirming elimination is strongly recommended. Optimal isolation period should be individualized based on the repeated dermatologic examination.

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1158. Needlestick Injuries and Other Potential Exposures to Bloodborne Pathogens Among Police Officers in a City Police Department, 2011–2016

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Background. The approximately 850,000 police officers nationwide are at risk of bloodborne diseases through needlestick injuries and other exposure incidents because of the nature of their work. In response to a request for a health hazard evaluation, we determined the incidence and circumstances of needlestick injuries and other potential exposures to bloodborne pathogens among police officers at a city department from 2011 to 2016.

Methods. We analyzed data extracted from the city’s centralized human resource database on all needlestick injuries and other potential exposure incidents from January 1, 2011 to December 31, 2016 and characterized their circumstances. We calculated the annual incidence of needlestick injuries using two methods. We ran a Poisson regression model to determine the trend in the annual incidence over time using SAAS 9.4.

Results. We identified 13 needlestick injuries and 37 additional potential exposure incidents. Needlestick injuries most commonly occurred during pat-down searches of a suspect and during search of a suspect’s property or vehicle. Nine of 11 source persons with documented test results after a needlestick injury were found to have hepatitis C infection. The annual incidence of needlestick injuries ranged from 0 to 5.07 per 1,000 police officers and from 0 to 2.45 per 10,000 reactive calls for service and did not appear to have a significant trend. Most exposure incidents consisted of spitting incidents, human bites, and other contact with blood. Of 22 source persons with blood drawn, four had hepatitis C infection, two have HIV infection, and one had both. None of the incidents reportedly led to transmission of hepatitis B, hepatitis C, or HIV.

Conclusion. Police officers in this department are at risk for needlestick injuries and other exposures to bloodborne pathogens. We recommended improvements in engineering, administrative, and personal protective equipment controls, including training on safe searching techniques and sharps evidence collection and provision of nitrile gloves.

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1159. Influenza Symptoms in Vaccinated Healthcare Workers in an H3N2-Dominant Season

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Background. Influenza vaccination reduces the risk of influenza illness among healthcare workers. The vaccination rate in the healthcare setting is high, although the efficacy of vaccination may be reduced in populations with high levels of coinfection with other respiratory viruses.

Methods. All patients who were diagnosed from 2008 to 2017 with scabies at a referral university hospital in Seoul, Republic of Korea were analyzed. We investigated the time interval between symptom onset and diagnosis of scabies. The period from the application of topical agents and clinical resolution was also analyzed.

Results. A total of 23 patients were diagnosed with scabies. There was no crusty scabies such as Norwegian scabies. Seventy percent of these patients were referred from long-term care facilities. Median number of treatment was three times per patient (Interquartile range [IQR], 2–3). Time interval between the onset of symptoms and the diagnosis of scabies was median 4 days (IQR, 2–14). Median isolation period was