available, as is the case in most low- and middle-income countries. Neither automated nor any manual cleaning regimes were able to completely remove biofilm and soil from the forceps hinged area, and the amount of protein left after automated and DMC plus hinge brushing was higher than the recommended. Cleaning is the most important step for the reprocessing of reusable medical devices; thus, efforts must be undertaken to improve cleaning in different social and economic realities and scenarios.

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Presentation Type:
Poster Presentation

Evaluation of a Continuous Decontamination Technology in an Intensive Care Unit

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Background: The scientific literature increasingly indicates the need for the development of continuous disinfection to address the persistent contamination and recontamination that occurs in the patient rooms despite routine cleaning and disinfection. **Methods:** To determine a baseline microbial burden level on patient room surfaces in the intensive care unit (ICU) of a large urban hospital, 50 locations were swabbed for total colony-forming units (CFU) and the prevalence of methicillin-resistant *Staphylococcus aureus* (MRSA). Once the baseline in ICU patient rooms was established, 5 novel decontamination devices were installed in the HVAC ducts near these patient rooms. The devices provide a continuous low-level application of oxidizing molecules, predominately hydrogen peroxide. These molecules exit the duct and circulate in the patient room through normal convection, landing on all surfaces. After activation, environmental sampling was conducted every 4 weeks for 4 months. The effect from continuous low levels of oxidizing molecules on the intrinsic microbial burden and the prevalence of MRSA were analyzed. In addition to external laboratory reports, the facility tracked healthcare-associated infections (HAIs) in the unit. HAI data were averaged by month and were compared to the preactivation average in the same unit. **Results:** The preactivation average microbial burden found on the 50 locations were 179,000 CFU per 100 in^2. The prevalence of MRSA was 71% with an average of 81 CFU per 100 in^2. After activation of the devices, levels of microbial burden, prevalence of MRSA, and average monthly HAI rates were all significantly lower on average: 95% reduction in average microbial burden (8,206 CFU per 100 in^2); 81% reduction in the prevalence of MRSA (13% vs 71%); 54% reduction in the average of healthcare-onset HAIs. All data were obtained from the averages of sampling data for 4 weeks during the 4-month trial period. **Conclusions:** The continuous application of low levels of oxidizing molecules throughout the patient rooms of an ICU demonstrated 3 outcomes: reduced overall surface microbial burden, lowered the incidence of MRSA, and significantly decreased the monthly average HAI rate. Please note, the ICU ran other infection prevention interventions at this time, including standard cleaning, as well as and their standard disinfecting techniques.

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Poster Presentation

Firefighters Fighting Germs - Evaluation of a Disinfecting Protocol for Use in the Fire Service

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Background: Pasco County Fire Rescue (PCFR) is a rapidly growing suburban fire department located in Florida. PCFR employs >500 firefighters (all cross-trained as either emergency medical technicians or paramedics) in 27 stations to provide both emergency medical services (EMS) and fire suppression response. Although multiple studies have established that pathogens are present in both apparatus and stations within the fire service, there is a knowledge gap regarding the effectiveness of cleaning and disinfecting protocols in this specific setting. **Methods:** In total, 65 high-touch surfaces in 11 vehicles (ambulances and engines) and common areas of 2 fire stations were swabbed before and after disinfection. Vehicle surfaces swabbed included seats, cabinet doors, door handles, stretchers, medical equipment, keyboard, steering wheels, shared headsets and hand rails. Inside the stations, the refrigerator handle, television remote, radio and alarm buttons, door handles, and locker handles were swabbed. Immediately
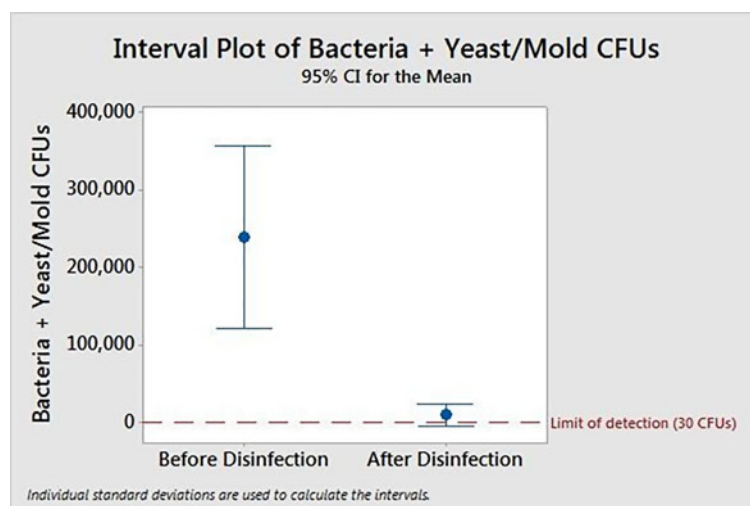

Fig. 1.

following the initial swab collection, the surfaces were disinfected with hydrogen peroxide wipes and disinfectant cleaner sprayed through an electrostatic system. The same surfaces were then swabbed after disinfection. Colony-forming units (CFUs) were quantified using standard microbiological techniques by a third-party laboratory. Statistical analysis was performed on the resulting bacterial counts using Minitab version 18.1 software. **Results:** We detected statistically significant decreases in total bacteria, yeast, and mold counts following implementation of this disinfection protocol. The predisinfection mean of bacteria, yeast, and mold counts for all surfaces combined was reduced 96% after disinfection (from 254,637 CFU to 9,392 CFU). **Conclusions:** Cleaning and disinfection of surfaces in PCFR emergency vehicles and fire station common areas with the agents described above effectively reduced contamination with bacteria, yeast, and mold spores. The PCFR has implemented this disinfection protocol as a tool in eliminating EMS vehicles and the station environment as reservoirs of infection for patients, visitors, and firefighters. Future efforts will include assessing the impact of regular cleaning and disinfection on baseline levels of bacteria, yeast, and mold spores.
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Presentation Type:
Poster Presentation
Impact of Antimicrobial Stewardship Programs in Latin American Adult Intensive Care Units: PROA-LATAM Project
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Background: Antimicrobial stewardship programs (ASPs) are useful in improving clinical outcomes in a cost-effective way and in reducing antimicrobial resistance. **Objective:** We sought to determine the impact of ASP in adult medical-surgical intensive care units (MS-ICUs). **Methods:** A multicenter study, in 77 MS-ICUs of 9 Latin-American countries, was conducted along 12 months (July 2018–June 2019). A self-assessment survey using a tool based on CDC recommendations (0–100 scale) was performed at the beginning, after 6 months, and at the end of the study. The impact of ASP was evaluated monthly using the following indicators: antimicrobial consumption (defined daily doses [DDD] per 100 patient days), appropriateness of antimicrobial prescriptions (percentage of total prescriptions), crude mortality rate (events per 100 discharges), and hospital-acquired multidrug-resistant microorganisms (MDRs) and *Clostridioides difficile* infections (CDI events per 1,000 patient days). These indicators were compared between MS-ICUs that reached the 75th percentile and those that maintained the 25th percentile at the final self-assessment. **Results:** Of all indicators evaluated, only surgical prophylaxis ≤24 hours, vancomycin therapeutic monitoring, and aminoglycosides (1 dose per day) did not show significant differences between MS-ICUs at the 75th percentile and the 25th percentile. CDI events were significantly higher at the 75th percentile MS-ICUs, probably related to better detection of *C. difficile* (Table 1). **Conclusions:** This study confirmed that MS-ICUs with more comprehensive ASPs had significantly better indicators.
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Poster Presentation
Influence of Antibiotic Susceptibility Testing on Antibiotic Choice in Hospital-Acquired and Ventilator-Associated Pneumonia
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Table. Indicators comparison between MS-ICUs based on the final level of self-assessment

Indicators	ASP final level			Comparison ≥75p vs ≤25p		
	≤25p (n=20)	<75p->25p (n=37)	≥75p (n=20)	Diff.	CI95%	p
Self-assessment; mean±SD	28.0±7.3	52.1±8.6	76.1±7.5	48.1	43.4 to 52.8	<0.0001
DDDs*	159.4	156.5	143.4	-16.0	-17.2 to -14.7	<0.0001
MDR infections†	10.96	13.53	9.45	-1.52	-2.56 to -0.48	0.004
CD infections	0.19	0.25	0.57	0.37	0.19 to 0.56	<0.0001
Crude mortality	17.7%	16.0%	15.9%	-1.8%	-2.8% to -0.8%	<0.0001
Validation of prescription by pharmacists	58.0%	58.6%	72.0%	14.0%	11.4% to 16.6%	<0.0001
Registration of prescription in the medical record	94.7%	97.2%	97.6%	2.9%	1.8% to 4.0%	<0.0001
Adherence to clinical guidelines	59.3%	72.2%	92.5%	33.2%	30.9% to 35.5%	<0.0001
Prospective audit with feedback	76.2%	87.9%	86.1%	9.9%	7.7% to 12.1%	<0.0001
Acceptance of infectious diseases physician recommendation	72.3%	89.6%	94.8%	22.5%	19.7% to 25.2%	<0.0001
Targeted treatments	27.6%	35.9%	39.5%	12.0%	9.2% to 14.7%	<0.0001
Redundant anti-anaerobial therapy	0.96%	0.80%	0.26%	-0.70%	-0.22% to -1.18%	0.003

*J01-J02 ATC categories
†MDR: Methicillin-resistant *S. aureus* ; Vancomycin-resistant Enterococcus; ESBL-Enterobacteriaceae; Carbapenem-resistant Enterobacteriaceae, *P. aeruginosa* , *Acinetobacter* spp

Fig. 1