IPC program was effective in lowering the prevalence of VAP and demonstrated which individual measures contributed to this improvement. By following the dynamics of known VAP risk factors over time, we found that their association with declining VAP prevalence varies significantly. Intervention-related factors (ie, use of antibiotics, anxiolytics and mechanical ventilation, and a rate of intestinal dysfunction) demonstrated significant reduction, and patient-related factors (ie, age, sex, comorbidity, etc) remained unchanged. Thus, according to the discriminative model, the intervention-related factors contributed more to the overall risk of VAP than did patient-related factors, and their reduction was associated with a decrease in VAP prevalence in our neurosurgical ICU.

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Poster Presentation

The Implementation of Active Environmental Surveillance in a Veterinary Referral Hospital Setting

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Background: The Ohio State University College of Veterinary Medicine (OSU-CVM) Antimicrobial Stewardship Working Group (ASWG) uses monthly environmental surveillance to understand the effectiveness of our veterinary medical center (VMC) infection control and biosecurity protocols in reducing environmental contamination with multidrug resistant organisms. Monthly surveillance allows us to monitor trends in the recovery of these resistant organisms and address issues of concern that could impact our patients, clients, staff, and students. **Methods:** The OSU-CVM ASWG collects samples from >100 surfaces within the companion animal, farm animal, and equine sections of our hospital each month. Sampling has been continuous since January 2018. Samples are collected from both human–animal contact and human-only contact surfaces using Swiffer electrostatic cloths. These samples are cultured for recovery of *Salmonella* spp, extended-spectrum cephalosporin-resistant Enterobacteriaceae, carbapenemase-producing Enterobacteriaceae (CPE), and methicillin-resistant *Staphylococcus* spp. **Results:** The recovery of these antibiotic resistant target organisms is low in the environment of our hospital. Recovery from human-only contact surfaces (19.8%) is very similar to recovery from human–animal contact surfaces (25.5%). We commonly recover Enterobacteriaceae (*E. coli*, *Klebsiella* spp, and *Enterobacter* spp) that are resistant to extended-spectrum cephalosporins (496 of 2,016; 24.6%) from the VMC environment. These antibiotic-resistant indicator bacteria are expected in a veterinary hospital setting where use the of β-lactam drugs is common. Recovery of both *Salmonella* spp and CPE has remained very low in our hospital environment over the past 19 months: 16 of 2,016 (0.7%) for *Salmonella* and 15 of 2,016 (0.8%) for CPE. **Discussion:** The active environmental surveillance component of our antimicrobial stewardship program has allowed us to reduce the threat of nosocomial infections within our hospital and address environmental contamination issues before they become a problem. Our consistently low recovery of resistant organisms indicates the effectiveness of our existing cleaning and disinfection protocols and biosecurity measures. Due to the nature of our patient population, we do expect to find resistant organisms in the patient-contact areas of the hospital environment. However, our similar rates of resistant organisms from human-only surfaces (eg, computer keyboards, door handles, telephones, and Cubex machines) indicates a need to improve our hand hygiene practices. These data are now supporting the implementation of a new hand hygiene campaign in our veterinary hospital.

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The Microbiome Analysis of Hospital Mobile Phones: Hidden Contaminants Revealed

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Background: The undisputed versatility of smart devices makes them integral to modern-day society, especially within our National Health System. Despite the benefits, there are increasing concerns regarding their contamination and the associated infection risk. Bacteria under antimicrobial selective pressure can rapidly acquire resistant mechanisms leading to the assumption; mobile phones used within clinical environments may harbor bacteria associated with a higher infection mortality rate. Using next-generation sequencing technology, we characterized the true extent of bacterial contamination on mobile devices of hospital staff to determine the level of antimicrobial resistance within *Staphylococcus aureus* and *Enterococcus faecalis*. Smart phones of 250 hospital staff and 191 control group participants were swabbed over a 6-month period. The microbiome of devices were characterized using Illinima MiSeq metabarcoding pipeline. Cultured isolates were quantified and underwent Kirby-Bauer disc diffusion. Primer version 6 and SPSS version 23 software were used to analyze the statistics. Nearly all mobile devices were contaminated with potential pathogens regardless of environment. Metabarcoding revealed far greater bacterial diversity and abundance of gram-negative bacterial contamination than did culture-based methods. In total, 198 bacterial genera of were discovered across both groups, of which 34 were unique to the hospital. Bacillus was significantly higher within the hospital group ($P = .036$). Differences were also detected within the hospital (high-risk vs low-risk areas, $P = .048$). Methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant *Enterococcus faecalis* were only isolated from hospital mobile phones ($P < .001$ and $P = .038$, respectively). Our results indicate that traditional culture-dependent swabbing methods do not provide an accurate picture of contamination. Metabarcoding reinforces the need for mobile phone infection control practices to mitigate the risks associated with the increase use of smart device technology in clinical environments. These devices are currently exposing immunocompromised patients to unknown levels of pathogenic and multidrug-resistant bacteria. Departmental differences may suggest that the mobile phone is not just an extension to its owners but to their environment and that routine decontamination should be required to prevent the undermining of hand hygiene and the transmission of pathogenic bacteria.

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