for changes in antibiotic use. **Results:** The data included 7,094 patients in the preintervention group and 6,661 patients in the postintervention group. The BPA fired 1,478 times. The prescribing rate of piperacillin-tazobactam 1 year prior to the BPA was 32.34 DDD and decreased every month both before (−1.22 DDD) and after (−0.27 DDD) the BPA initiation, with no significant difference in prescribing trends ($P = .10$). Meropenem prescribing in the BPA era increased each month compared to the pre-BPA period (1.16 DDD; $P = 0.02$), whereas cefazolin use ($P = .93$) and ceftriaxone ($P = .09$) use did not significantly change. **Conclusions:** The data show that piperacillin-tazobactam utilization at our institution is decreasing. Considering that this trend started prior to the launch of the BPA and that rate of decline remained unchanged post-BPA, we conclude that the BPA did not further impact our piperacillin-tazobactam consumption. It is possible that other factors influencing prescribing account for the observed decline, including an institution-wide educational campaign regarding the appropriate use of broad-spectrum antibiotics that was initiated in the months prior to the BPA. The reason for the significant rise in meropenem post-BPA is unclear. This may be unrelated to the BPA; however, it requires further investigation.

1. Core elements of hospital antibiotic stewardship programs. Centers for Disease Control and Prevention website. https://www.cdc.gov/antibioticuse/healthcare/implementation/core-elements.html. Updated July 19, 2019. Accessed October 6, 2019.

Funding: None
Disclosures: None
Doi:10.1017/ice.2020.1057

Presentation Type:
Poster Presentation

The Impact of Changing to an Algorithm-Based *Clostridioides difficile* Test on the Decision to Treat *Clostridioides difficile*

Lana Dbeibo, Indiana University School of Medicine; Joy Williams, Indiana University School of Medicine; Josh Sadowski, Indiana University Health; William Fadel, Indiana University; Vera Winn, Indiana University Health; Cole Beeler; Kristen Kelley; Douglas Houston Webb, Indiana University Health; Areeba Kara, Indiana University School of Medicine

Background: Polymerase chain reaction (PCR) testing for the diagnosis of *Clostridioides difficile* infection (CDI) detects the presence of the organism; a positive result therefore cannot differentiate between colonization and the pathogenic presence of the bacterium. This may result in overdiagnosis, overtreatment, and risking disruption of microbial flora, which may perpetuate the CDI cycle. Algorithm-based testing offers an advantage over PCR testing as it detects toxin, which allows differentiation between colonization and infection. Although previous studies have demonstrated the clinical utility of this testing algorithm in differentiating infection from colonization, it is unknown whether the test changes CDI treatment decisions. Our facility switched from PCR to an algorithm-based testing method for CDI in June 2018. **Objective:** In this study, we evaluated whether clinicians' decisions to treat patients are impacted by a test result that implies colonization (GDH+/Tox−/PCR+ test), and we examined the impact of this decision on patient outcomes. **Methods:** This is a retrospective cohort study of inpatients with a positive *C. diff* test between June 2017 and June 2019. The primary outcome was the proportion of patients treated for CDI. We compared this outcome in 3 groups of patients: those with a positive PCR test (June 2017–June 2018), those who had a GDH+/Tox−/PCR+ or a GDH+/Tox+ test result (June 2018–June 2019). Secondary outcomes included toxic megacolon, critical care admission, and mortality in patients with GDH+/Tox−/PCR+ who were treated versus those who were untreated. **Results:** Of patients with a positive PCR test, 86% were treated with CDI-specific antibiotics, whereas 70.4% with GDH+/Tox+ and 29.25% with GDH+/Tox−/PCR+ result were treated ($P < .0001$). Mortality was not different between patients with GDH+/Tox−/PCR+ who were treated versus those who were untreated (2.7% vs 3.4%; $P = .12$), neither was critical care admission within 2 or 7 days of test result (2% vs 1.4%; $P = .15$) and (4.1% vs 5.4%, $P = .39$), respectively. There were no cases of toxic megacolon during the study period. **Conclusions:** The change to an algorithm-based *C. difficile* testing method had a significant impact on the clinicians' decisions to treat patients with a positive test, as most patients with a GDH+/Tox−/PCR+ result did not receive treatment. These patients did not suffer more adverse outcomes compared to those who were treated, which has implications for testing practices. It remains to be explored whether clinicians are using clinical criteria to decide whether or not to treat patients with a positive algorithm-based test, as opposed to the more reflexive treatment of patients with a positive PCR test.

Funding: None
Disclosures: None
Doi:10.1017/ice.2020.1058

Presentation Type:
Poster Presentation

The Impact of Intervention-Related Risk Factors on the Risk of Ventilator-Associated Pneumonia Is High in a Neurosurgical Intensive Care Unit

Ksenia Ershova, Keck School of Medicine at USC; Oleg Khomenko, Skolkovo Institute of Science and Technology; Olga Ershova, Burdenko Neurosurgery Institute; Ivan Savin, Burdenko Neurosurgery Institute; Natalia Kurdumova, Burdenko Neurosurgery Institute; Gleb Danilov, Burdenko Neurosurgery Institute; Michael Shifrin, Burdenko Neurosurgery Institute

Background: Ventilator-associated pneumonia (VAP) represents the highest burden among all healthcare-associated infections (HAIs), with a particularly high rate in patients in neurosurgical ICUs. Numerous VAP risk factors have been identified to provide a basis for preventive measures. However, the impact of individual factors on the risk of VAP is unclear. The goal of this study was to evaluate the dynamics of various VAP risk factors given the continuously declining prevalence of VAP in our neurosurgical ICU. **Methods:** This prospective cohort unit-based study included neurosurgical patients who stayed in the ICU >48 consecutive hours in 2011 through 2018. The infection prevention and control (IPC) program was implemented in 2010 and underwent changes to adopt best practices over time. We used a 2008 CDC definition for VAP. The dynamics of VAP risk factors was considered a time series and was checked for stationarity using theAugmented Dickey-Fuller test (ADF) test. The data were censored when a risk factor was present during and after VAP episodes. **Results:** In total, 2,957 ICU patients were included in the study, 476 of whom had VAP. Average annual prevalence of VAP decreased from 15.8 per 100 ICU

patients in 2011 to 9.5 per 100 ICU patients in 2018 (Welch *t* test *P* value = 7.7e-16). The fitted linear model showed negative slope (Fig. 1). During a study period we observed substantial changes in some risk factors and no changes in others. Namely, we detected a decrease in the use of anxiolytics and antibiotics, decreased days on mechanical ventilation, and a lower rate of intestinal dysfunction, all of which were nonstationary processes with a declining trend (ADF test*P* > .05) (Fig. 2). However, there were no changes over time in such factors as average age, comorbidity index, level of consciousness, gender, and proportion of patients with brain trauma (Fig. 2). **Conclusions:** Our evidence-based

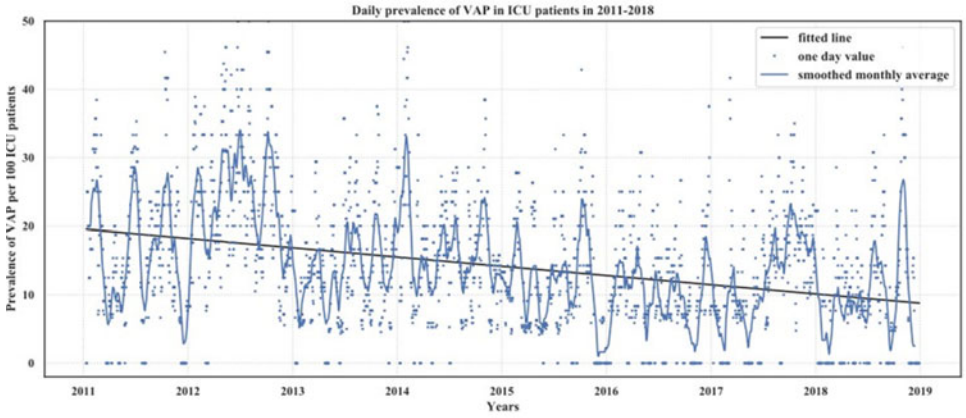

Figure 1. Daily prevalence of VAP per 100 ICU patients in neuro-ICU in 2011-2018

Fig. 1.

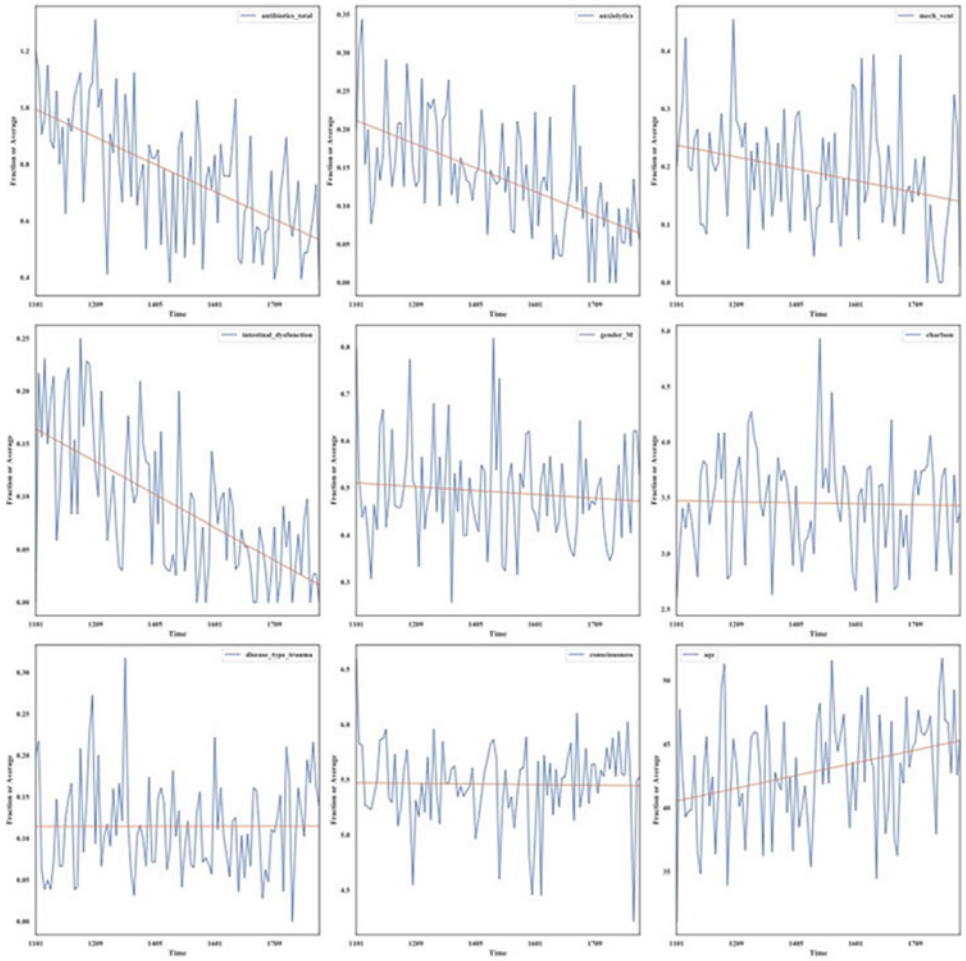

Figure 2. Dynamics of different VAP risk factors in neuro-ICU patients in 2011-2018

Fig. 2.

https://doi.org/10.1017/ice.2020.1059 Published online by Cambridge University Press

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.
Funding: None
Disclosures: None
Doi:10.1017/ice.2020.1059

Presentation Type:
Poster Presentation
The Implementation of Active Environmental Surveillance in a Veterinary Referral Hospital Setting
Emily Feyes, The Ohio State University College of Veterinary Medicine; Dixie Mollenkopf, The Ohio State University College of Veterinary Medicine; Thomas Wittum, The Ohio State University College of Veterinary Medicine; Dubraska Diaz-Campos, The Ohio State University College of Veterinary Medicine; Rikki Horne, The Ohio State University College of Veterinary Medicine

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.
Funding: None
Disclosures: None
Doi:10.1017/ice.2020.1060

Presentation Type:
Poster Presentation
The Microbiome Analysis of Hospital Mobile Phones: Hidden Contaminants Revealed
Rebecca Simmonds, University of South Wales

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.
Funding: None
Disclosures: None
Doi:10.1017/ice.2020.1061