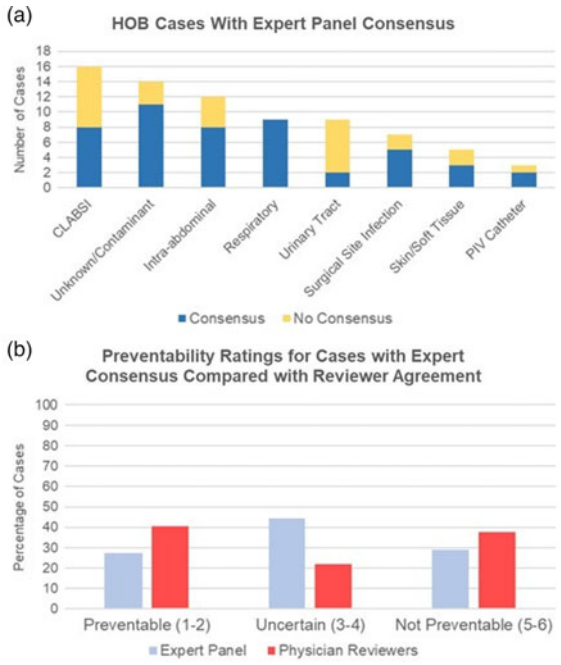

Figure 2. 2a. Pre-defined sources of HOB and associated ability of expert panel to achieve consensus on preventability rating.
2b. Distribution of preventability rating categories for cases that reached consensus among the expert panel (n=52) compared to cases with reviewer agreement (n=69).
Abbreviations: HOB, Hospital-onset bacteremia and fungemia. CLABSI, Central line-associated bloodstream infection. PIV, peripheral intravenous

Fig. 2.

Conclusions: Healthcare epidemiology experts hold varying perspectives on HOB preventability. Structured tool-based preventability rating had high interreviewer reliability, matched expert consensus in most cases, and rated fewer cases with uncertain preventability compared to expert consensus. This tool is a step toward standardized assessment of preventability in future HOB evaluations.
Funding: None
Disclosures: None
Doi:10.1017/ice.2020.509

Presentation Type:
Oral Presentation

Development of an Electronic Algorithm to Target Outpatient Antimicrobial Stewardship Efforts for Acute Bronchitis

Ebbing Lautenbach, Perelman School of Medicine, University of Pennsylvania; Keith Hamilton, Hospital of the University of Pennsylvania; Robert Grundmeier, Children's Hospital of Philadelphia; Melinda Neuhauser, CDC DHQP; Lauri Hicks, Centers for Disease Control and Prevention; Anne Jaskowiak, University of Pennsylvania; Leigh Cressman, University of Pennsylvania; Tony James, University of Pennsylvania; Jacqueline Omorogbe, University of Pennsylvania; Nicole Frager, Children's Hospital of Philadelphia; Muida Menon, University of Pennsylvania; Ellen Kratz, Children's Hospital of Philadelphia; Jeffrey Gerber, University of Pennsylvania School of Medicine

Background: Antibiotic resistance has increased at alarming rates, driven predominantly by antibiotic overuse. Although most antibiotic use occurs in outpatients, antimicrobial stewardship programs have primarily focused on inpatient settings. A major challenge for outpatient stewardship is the lack of accurate and accessible electronic data to target interventions. We sought to develop and validate an electronic algorithm to identify inappropriate antibiotic use for outpatients with acute bronchitis. Methods: This study was conducted within the University of Pennsylvania Health System (UPHS). We used ICD-10 diagnostic codes to identify encounters for acute bronchitis at any outpatient UPHS practice between March 15, 2017, and March 14, 2018. Exclusion criteria included underlying immunocompromising condition, other comorbidity influencing the need for antibiotics (eg, emphysema), or ICD-10 code at the same visit for a concurrent infection (eg, sinusitis). We randomly selected 300 (150 from academic practices and 150 from nonacademic practices) eligible subjects for detailed chart abstraction that assessed patient demographics and practice and prescriber characteristics. Appropriateness of antibiotic use based on chart review served as the gold standard for assessment of the electronic algorithm. Because antibiotic use is not indicated for this study population, appropriateness was assessed based upon whether an antibiotic was prescribed or not. Results: Of 300 subjects, median age was 61 years (interquartile range, 50–68), 62% were women, 74% were seen in internal medicine (vs family medicine) practices, and 75% were seen by a physician (vs an advanced practice provider). On chart review, 167 (56%) subjects received an antibiotic. Of these subjects, 1 had documented concern for pertussis and 4 had excluding conditions for which there were no ICD-10 codes. One received an antibiotic prescription for a planned dental procedure. Thus, based on chart review, 161 (54%) subjects received antibiotics inappropriately. Using the electronic algorithm based on diagnostic codes, underlying and concurrent conditions, and prescribing data, the number of subjects with inappropriate prescribing was 170 (56%) because 3 subjects had antibiotic prescribing not noted based on chart review. The test characteristics of the electronic algorithm (compared to gold standard chart review) for identification of inappropriate antibiotic prescribing were the following: sensitivity, 100% (161 of 161); specificity, 94% (130 of 139); positive predictive value, 95% (161 of 170); and negative predictive value, 100% (130 of 130). **Conclusions:** For outpatients with acute bronchitis, an electronic algorithm for identification of inappropriate antibiotic prescribing is highly accurate. This algorithm could be used to efficiently assess prescribing among practices and individual clinicians. The impact of interventions based on this algorithm should be tested in future studies.
Funding: None
Disclosures: None
Doi:10.1017/ice.2020.510

Presentation Type:
Oral Presentation

Direct Data Mining from the Electronic Medical Record to Assess and Improve Compliance With Infection Prevention Bundles

Janet Conner, Banner Health Western Region; Joan Ivaska, Banner Health

Background: Bundles have been proven to reduce the risk of healthcare-associated infections and to provide for rapid recognition and response for the best outcome in patients with sepsis. Each element alone does not provide the statistical significance that all elements together allow. Providing near real-time compliance with bundle measures to clinical staff can drive performance improvement with

the bundle during the patient's hospital stay, resulting in improved clinical care and prevention of infection. **Methods**: In 2019, 3 clinical initiatives were chartered that applied evidence-based bundles for early identification and treatment of sepsis, prevention of healthcare-associated pneumonia (HAP), and prevention of surgical site infection. The bundle included the following elements: assessment of sepsis, measurement of lactic acid, collection of blood culture, timely administration of antibiotics. The HAP bundle included the following elements: assessment of aspiration risk, elevation of the head of the bed, oral care twice daily and preoperatively, and incentive spirometry postoperatively. And the SSI bundle included the following elements: preoperative CHG bath, appropriate preoperative antibiotic, perioperative glucose control, and perioperative temperature control. A multidisciplinary team developed and implemented dashboards that extracted bundle elements from the electronic medical record (EMR) nightly. Bundle compliance was calculated at the individual element level as well as the aggregate. Bundle failure data were available at the patient level as well as in aggregate by care location and provider, allowing for real-time feedback to staff and creation of improvement plans. An unanticipated benefit was the identification and correction of charting inconsistencies. **Results:** Collection, aggregation, and analysis of bundle compliance data were displayed in a system dashboard, and data were refreshed nightly. This approach allowed us to display overall bundle compliance at the facility and system level, including a heat map showing each facility's compliance with the bundle and each associated element. Utilization of an EMR dashboard allowed for performance review on 100% of eligible patients rather than a sample, as occurs with manual review and abstraction processes. Routine review of performance via the dashboards with frontline staff, clinical leaders, medical staff, and executives has resulted in month-by-month improvement in bundle compliance. **Conclusions:** Direct data mining, data aggregation and analysis, followed by direct feedback to frontline staff, has resulted in steady improvement in overall bundle compliance, compliance with individual bundle components, and standardization of charting in the EMR. This approach has ultimately resulted in better outcomes for sepsis patients, reduction in healthcare-associated pneumonia, and reduction in surgical site infections.

Funding: None
Disclosures: None
Doi:10.1017/ice.2020.511

Presentation Type:
Oral Presentation

Effectiveness of Ultraviolet-C Room Disinfection on Preventing Healthcare-Associated *Clostridioides difficile* Infection

Michihiko Goto, University of Iowa Carver College of Medicine; Erin Balkenende, Center for Access & Delivery Research & Evaluation (CADRE), Iowa City Veterans Affairs Health Care System; Gosia Clore, University of Iowa; Rajeshwari Nair, The University of Iowa; Loretta Simbartl, Department of Veterans Affairs; Martin Evans, University of Kentucky School of Medicine/VHA; Nasia Safdar, University of Wisconsin, Madison; Eli Perencevich, University of Iowa, Carver College of Medicine

Background: Enhanced terminal room cleaning with ultraviolet C (UVC) disinfection has become more commonly used as a strategy to reduce the transmission of important nosocomial pathogens, including *Clostridioides difficile*, but the real-world effectiveness remains unclear. **Objectives**: We aimed to assess the association of UVC disinfection during terminal cleaning with the incidence of healthcare-associated *C. difficile* infection and positive test results for *C. difficile* within the nationwide Veterans Health Administration (VHA) System. **Methods**: Using a nationwide survey of VHA system acute-care hospitals, information on UV-C system utilization and date of implementation was obtained. Hospital-level incidence rates of clinically confirmed hospital-onset *C. difficile* infection (HO-CDI) and positive test results with recent healthcare exposures (both hospital-onset [HO-LabID] and community-onset healthcare-associated [CO-HA-LabID]) at acute-care units between January 2010 and December 2018 were obtained through routine surveillance with bed days of care (BDOC) as the denominator. We analyzed the association of UVC disinfection with incidence rates of HO-CDI, HO-Lab-ID, and CO-HA-LabID using a nonrandomized, stepped-wedge design, using negative binomial regression model with hospital-specific random intercept, the presence or absence of UVC disinfection use for each month, with baseline trend and seasonality as explanatory variables. **Results**: Among 143 VHA acute-care hospitals, 129 hospitals (90.2%) responded to the survey and were included in the analysis. UVC use was reported from 42 hospitals with various implementation start dates (range, June 2010 through June 2017). We identified 23,021 positive *C. difficile* test results (HO-Lab ID: 5,014) with 16,213 HO-CDI and 24,083,252 BDOC from the 129 hospitals during the study period. There were declining baseline trends nationwide (mean, −0.6% per month) for HO-CDI. The use of UV-C had no statistically significant association with incidence rates of HO-CDI (incidence rate ratio [IRR], 1.032; 95% CI, 0.963–1.106; $P = .65$) or incidence rates of healthcare-associated positive *C. difficile* test results (HO-Lab). **Conclusions:** In this large quasi-experimental analysis within the VHA System, the enhanced terminal room cleaning with UVC disinfection was not associated with the change in incidence rates of clinically confirmed hospital-onset CDI or positive test results with recent healthcare exposure. Further research is needed to understand reasons for lack of effectiveness, such as understanding barriers to utilization.

Funding: None
Disclosures: None
Doi:10.1017/ice.2020.512

Presentation Type:
Oral Presentation

Effects of Susceptibility Result Suppression on National Healthcare Safety Network Antibiotic Resistance Option Data

Matthew Estes, Tennessee Department of Health; Youssoufou Ouedraogo, Tennessee Department of Health; Christopher David Evans, TN Department of Health; Daniel Muleta, Tennessee Department of Health; Cullen Adre, Tennessee Department of Health; Amelia Keaton, TN Department of Health; Marion Kainer, Western Health

Background: The National Healthcare Safety Network's (NHSN) Antibiotic Resistance (AR) Option offers hospitals a way to report antibiotic resistance data from their facility's laboratory information system and create facility-specific antibiograms. Suppression of select antibiotic susceptibility results may be used by antibiotic stewardship teams to prevent unnecessary use of broad-spectrum therapies by not making those susceptibilities available to providers. To be of use, antibiograms should offer a complete picture of antibiotic resistance. We wanted to understand the impact of data suppression. **Methods:** A retrospective cross-sectional study was conducted including data from 2017 and 2018. The clinical susceptibility data