Presentation Type:
Poster Presentation
Extending the Use of Healthcare-Associated Infections and Antibiotic Use and Resistance Surveillance Data

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Background: The CDC National Healthcare Safety Network (NHSN) is the nation's most widely used healthcare-associated infection (HAI) and antibiotic use and resistance (AUR) surveillance system. More than 22,000 healthcare facilities report data to the NHSN. The NHSN data are used by facilities, the CDC, health departments, the CMS, among other organizations and agencies. In 2017, the CDC updated the NHSN Agreement to Participate and Consent ("Agreement"), completed by facilities, broadening health department access to NHSN data and extending eligibility for data use agreements (DUAs) to local and territorial health departments. DUAs enable access to NHSN data reported by facilities in the health department's jurisdiction and have been available to state health departments since 2011. The updated agreement also enables the CDC to provide NHSN data to health departments for targeted prevention projects outbreak investigations and responses. **Methods:** We reviewed the current NHSN DUA inventory to assess the extent to which health departments use the NHSN's new data access provisions and used semistructured interviews with health department staff, conducted via emails, phone, and in person conversations, to identify and describe their NHSN data uses. **Results:** As of late 2019, the NHSN has DUAs with health departments in 17 states, 7 local health departments (including municipalities and counties), and 1 US territory. The NHSN also has received requests from 2 state health departments for data supporting HAI prevention projects. Health departments with DUAs described improved relationships with facilities in their jurisdictions because of new opportunities to offer NHSN data analysis assistance to facilities. One local health department analyzed their NHSN carbapenem-resistant Enterobacteriaceae (CRE) data to identify (1) facilities in its jurisdiction with comparatively high CRE infection burden and (2) geographic areas to target for a CRE isolate submission program. Outreach to facilities with high CRE burden led to enrollment of 15 clinical laboratories into a voluntary isolate submission program to analyze CRE isolates for additional characterization. Examples of health departments' use of data for action include: notifying facilities with high standardized infection ratios (SIRs) and sharing Targeted Assessment for Prevention (TAP) reports. **Conclusions:** The NHSN's role as a shared surveillance resource has expanded in multiple public health jurisdictions as a result of new data access provisions. Health departments are using NHSN data in their programmatic responses to HAI and AR challenges. New access to NHSN data is enabling public health jurisdictions to assess problems and opportunities, provide guidance for prevention projects, and support program evaluations.

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Poster Presentation
Factors Associated With Inappropriate Antibiotic Use in Hospitalized Patients

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Background: Inappropriate antibiotic prescription leads to increased *Clostridiodes difficile* infections, adverse effects including organ toxicity, and generation of antibiotic-resistant bacteria. Despite efforts to improve antibiotic use in acute-care settings, unnecessary and inappropriate prescription still occur in 30%–50% of patients. **Objectives:** We assessed factors associated with inappropriate antibiotic prescription at 2 time points: (1) initial, empiric therapy and (2) 3–5 days after therapy initiation. **Methods:** As part of a multicenter study investigating strategies to reduce antibiotic therapy after 3–5 days of use, antibiotic prescription data were collected from 11 adult and pediatric intensive care and general medical units at 6 hospitals in Maryland in 2014 and 2015. We performed a retrospective cohort study of all hospitalized patients who received any of 23 common antibiotics for at least 3 days. Each medical record was reviewed for demographics, admission and discharge dates, patient comorbidities, and antibiotic regimen by at least 1 infectious disease physician or pharmacist. Classification of antibiotic inappropriateness was based on each institution's guidelines and standards. Bivariate analyses were performed using logistic regression for both initial therapy and therapy at days 3–5. Multivariable logistic regression was performed using covariates meeting the significance level of $P < .05$. Results: In total, 3,436 antibiotic courses were assessed at time of initial therapy, and 1541 regimens were continued and reviewed again at days 3–5 of therapy. For the initial therapy, 1,255 regimens (37%) were inappropriate; 45% of these were considered unnecessary and 41% were too broad in spectrum. In the multivariable regression, older age and antibiotic prescription during the summer were associated with the receipt of inappropriate antibiotics (Table 1). Having end-stage renal disease as a comorbid condition was protective against inappropriate use. At days 3–5 of therapy, 688 (45%) of the antibiotic courses were inappropriate. Reasons regimens were considered inappropriate included unnecessary antibiotic prescriptions (49%) and antibiotics being too broad (38%). Older age and receiving cefepime or piperacillin-tazobactam on day 3 of therapy were factors associated with inappropriate use (Table 2). Having undergone a transplant or a surgical procedure was protective of inappropriate antimicrobial use at days 3–5 of therapy. **Conclusions:** Older patients are more likely to receive inappropriate antibiotics at both initial regimen and 3–5 days later. Patients receiving cefepime or piperacillin-tazobactam are at greater risk of receiving inappropriate antibiotics at days 3–5 due to failure to de-escalate. Antibiotic stewardship strategies targeting these patient populations may limit inappropriate use.