1005. The Antibiotic Optimization DOOR: Refining Assessment of Antibiotic Therapy with Desirability of Outcome Ranking
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Session: 130. Antibiotic Stewardship: Antibiotic Utilization
Friday, October 4, 2019: 12:15 PM
Background. Desirability of outcome ranking (DOOR) is a novel methodology for interpreting multiple outcomes into a single value to more comprehensively compare therapeutic strategies. Its primary application has been limited to antibiotic clinical trials, incorporating treatment success and antibiotic toxicity into a single measure. We describe the application of DOOR methodology to a retrospective study evaluating antibiotic optimization.

Methods. This was a single-center, retrospective quasi-experimental study conducted at an academic medical center evaluating the impact of prospective pharmacist review of rapid molecular diagnostic testing (RDT) of blood cultures on antibiotic optimization. Two 8-week time periods were evaluated, corresponding to RDT implementation prior to prospective pharmacist review (RDT-only) and RDT with prospective pharmacist review (RDT-PPR). Patients with a positive blood culture who were not on optimal therapy at the time of gram stain were included in the study. Outcomes included the percentage of patients who received optimal therapy, time to optimal antibiotic therapy, and percentage of patients who had therapy de-escalated. An antibiotic optimization DOOR was created with 3 ordinal ranks. The most desirable outcome, rank one, was patients receiving optimal therapy with no missed de-escalation opportunities. Rank two was patients receiving optimal therapy with a missed de-escalation opportunity. The least desirable outcome, rank three, consisted of patients not receiving optimal antibiotic therapy. Time to optimal therapy was used as a tie-breaker for patients in ranks one and two.

Results. A total of 19 and 29 patients were included in the pre and post-intervention periods, respectively. The percentage of patients reaching optimal therapy was 84% (16/19) and 97% (28/29) (P = 0.16). Median time to optimal therapy was 30:28:26 and 22:40:17 (P = 0.32), respectively. DOOR analysis indicated that the probability of a better outcome for the RDT-PPR group than the RDT-only group was 58% (95% CI 54-60).

Conclusion. In this small retrospective study, the use of a novel composite methodology identified the benefit of an intervention that was not detected by standard comparison of individual outcomes.

Disclosures. All authors: No reported disclosures.

1006. Do Antibiotic Choices Made in the ED Influence Inpatient Therapy? Travis M. Jones, PharmD2; Elizabeth Dodd Ashley, PharmD, MHS; Melissa D. Johnson, PharmD, MHS1; Rebekah W. Moehring, MD, MPH1; Christina Sarubbi, PharmD2; Rebekah Wrenn, PharmD, BCPS2; Duke Center for Antimicrobial Stewardship and Infection Prevention, Durham, North Carolina; 2Duke University Hospital, Durham, North Carolina.
Session: 130. Antibiotic Stewardship: Antibiotic Utilization
Friday, October 4, 2019: 12:15 PM
Background. Inappropriate antibiotic use (AU) is common among inpatients and may begin in the emergency department (ED). ED clinicians often make the first antibiotic decisions in patient care, but it is unknown whether or not these decisions influence patients’ understanding and practicing practices at transitions of care is critical for implementing effective stewardship strategies.

Methods. We performed a retrospective cohort study of AU in patients admitted to Duke University Hospital through the ED between July and December 2018. Included encounters had a minimum 2-day length of stay and received an antibiotic in both the ED and inpatient setting. Individual encounter IDs were used to link ED and inpatient AU reports generated from the DASON Antimicrobial Stewardship Assessment Portfolio. We compared the last ED administration date/time to the first inpatient unit administration for each agent. An antibiotic started in the ED was considered continued upon admission if the first inpatient administration occurred within 30 hours following the last ED administration. Demographic, clinical indication on order entry, length of therapy, and administration occurred within 30 hours following the last ED admin.

Results. A total of 19 and 29 patients were included in the pre and post-intervention periods, respectively. The percentage of patients reaching optimal therapy was 84% (16/19) and 97% (28/29) (P = 0.16). Median time to optimal therapy was 30:28:26 and 22:40:17 (P = 0.32), respectively. DOOR analysis indicated that the probability of a better outcome for the RDT-PPR group than the RDT-only group was 58% (95% CI 54-60).

Conclusion. In this small retrospective study, the use of a novel composite methodology identified the benefit of an intervention that was not detected by standard comparison of individual outcomes.

Disclosures. All authors: No reported disclosures.

1007. A novel approach to evaluate antibiotic utilization across the spectrum of inpatient and ambulatory care and implications for prioritization of stewardship efforts
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Session: 130. Antibiotic Stewardship: Antibiotic Utilization
Friday, October 4, 2019: 12:15 PM
Background. Antibiotic overuse remains a significant problem in inpatient and outpatient settings. The objective of this study was to develop a methodology to evaluate antibiotic use across inpatient and ambulatory care sites in an integrated healthcare system in order to prioritize antibiotic stewardship efforts.

Methods. We conducted an epidemiologic study of antibiotic use across an integrated healthcare system on 12 randomly-selected days between October 1, 2017 and September 30, 2018. Inpatients and perioperative patients were recorded as having received an antibiotic if they were admitted within 48 hours of their antibiotic therapy, and percentage of patients who had therapy de-escalated. Outpatients were recorded as having received an antibiotic if they were prescribed ≥1 systemic antibiotic agent.

Results. On the study days, 10.9% (95% CI 10.6–11.3%) of patients received an antibiotic. Of all antibiotics administered or prescribed, 54.1% were from inpatient care (95% CI 52.6–55.7%), 38.0% were from the hospital, (95% CI 36.6–39.5%), and 7.8% (95% CI 7.1–7.8%) were perioperative. The emergency department/urgent care centers, adult outpatient clinics, and adult noncritical care inpatient wards accounted for 36.4% (95% CI 35.4–37.4%), 23.8% (95% CI 22.6–25.0), and 23.9% (95% CI 22.7–25.3) of antibiotic use, respectively. Only 9.2% (95% CI 8.3–10.1%) of all antibiotics were administered in critical care units. Antibiotics with a broad spectrum of Gram-negative activity accounted for 30.4% (95% CI 29.0–31.9%) of all antibiotics prescribed. Differences in use across hospital sites were limited to inpatient wards. The respiratory tract was the most common indication for antibiotic use.

Conclusion. In an integrated healthcare system, nearly three-quarters of antibiotic use occurred in the emergency department/urgent care centers, adult outpatient clinics, and adult noncritical care inpatient wards. Antibiotics with a broad spectrum of Gram-negative activity accounted for a large portion of antibiotic use. Analysis of antibiotic utilization across the spectrum of inpatient and ambulatory care is useful to prioritize antibiotic stewardship efforts.

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1008. The Reduction of Fluoroquinolone Prescribing in Rural Vermont Hospitals
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Session: 130. Antibiotic Stewardship: Antibiotic Utilization
Friday, October 4, 2019: 12:15 PM
Background. In 2017 The Joint Commission required all hospitals irrespective of size to implement antimicrobial stewardship programs (ASPs) using the CDC core elements (CE) for antimicrobial stewardship (AS). Critical access and rural community hospitals have struggled with developing effective ASPs. Many ASPs seek to reduce fluoroquinolone (FQ) prescribing due to its high risk for drug–drug interactions, risk of Clostridioides difficile infection, and numerous side effects, including five black box warnings from the FDA.

Methods. We contracted with the Vermont Department of Health to help rural YT hospitals develop ASPs that are compliant with the CDC CE for AS. Six of Vermont’s 13 rural hospitals were recruited to participate in the program from March 2017 – December 2017 (Table 1). Each hospital obtained antibiotic usage (AU) data in grams (g)/1000 (1k) patient-days (PD) from their electronic medical record (EMR), starting from January 2017. All identified FQ use were included as FQ prescribing due to its high risk for drug–drug interactions, risk of Clostridioides difficile infection, and numerous side effects, including five black box warnings from the FDA.

Conclusion. In an integrated healthcare system, nearly three-quarters of antibiotic use occurred in the emergency department/urgent care centers, adult outpatient clinics, and adult noncritical care inpatient wards. Antibiotics with a broad spectrum of Gram-negative activity accounted for a large portion of antibiotic use. Analysis of antibiotic utilization across the spectrum of inpatient and ambulatory care is useful to prioritize antibiotic stewardship efforts.

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Background. Little is known about the antimicrobial prescribing practices in hematologic and oncology (haemoc) populations. We aimed to explore antimicrobial prescribing practices in haemoc patients compared with other acute inpatients, in order to target areas for intervention.

Methods. In Australia, facilities nationwide participate in an annual point-prevalence survey of antimicrobial prescribing in hospitalized patients (Hospital National Antimicrobial Prescribing Survey (Hospital NAPS)). The results for adult inpatients from 2015–2018 were analyzed. Assessments of appropriateness were undertaken by local antimicrobial stewardship teams according to a structured approach defined as: (1) optimal; (2) inadequate; (3) suboptimal; (4) inadequate); 5 (not assessable). A score of 1 or 2 is considered to be ‘appropriate’ and 3 or 4 ‘inappropriate’; those not assessable were excluded. Antimicrobial class, indication and appropriateness were compared between haemoc and other acute inpatient populations. Using logistic regression analysis, factors associated with appropriate prescribing of antibacterials were explored.

Results. The survey comprised 95809 antibiotic prescriptions for 63668 adult inpatients (4097 haemoc, 59671 other inpatients) in 423 acute facilities. The top treatment and prophylactic indications for all classes of antibacterials were highly disparate between haemoc and other inpatients (table). Of note in the haemoc group, vancomycin use was high, and amphotericin B was used frequently for antifungal treatment. In multivariable analysis, haemoc patients were strongly associated with antibacterial appropriateness compared with other inpatients (adjusted OR 1.72, 95% CI 1.59–1.87, P < 0.001); factors associated with inappropriate prescription included antibiotic allergies and prophylactic indications.

Conclusion. Haemoc patients were more likely to receive appropriate antimicrobials compared with other inpatients. However, we have identified key areas for targeted interventions (prophylaxis use, antibiotic allergy labels, vancomycin and amphotericin B treatment). Separate analysis of haemoc populations is necessary to identify key areas of concern specific to this patient group.

Session: 130. Antibiotic Stewardship: Antibiotic Utilization
Friday, October 4, 2019: 12:15 PM

1011. Hospital Antibiogram Variation within a Veterans Affairs (VA) Regional Network

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Session: 130. Antibiotic Stewardship: Antibiotic Utilization
Friday, October 4, 2019: 12:15 PM

Background. The use of antibiograms is a useful tool in assessing antibiotic susceptibility and trends over time. The performance of an antibiogram is influenced by the methodology used and the number of sites included.

Methods. This is a retrospective analysis of antibiogram data from 2016 to 2018, compared between 423 acute hospitals and 65 VA healthcare systems. We observed the variation in antibiogram performance by calculating the number of susceptibility results and the number of patients tested in each facility. We used the Spearman rank correlation coefficient to observe the relationship between the number of susceptibility results and the number of patients tested across facilities.

Results. Among facilities, the number of susceptibility results ranged from 0 to 54,119 (median: 1,229), and the number of patients tested ranged from 0 to 4,036,230 (median: 12,299). There was a moderate negative correlation between the antibiogram number of susceptibility results and the number of patients tested across facilities (ρ = -0.34, P < 0.0001). Facilities with more patients tested tended to have fewer susceptibility results.

Conclusion. Antibiogram methodology significantly impacts the performance of an antibiogram. Facilities with larger patient volumes may be more likely to have fewer susceptibility results, which could have implications for antibiotic stewardship and resource allocation.

References. None.

Session: 130. Antibiotic Stewardship: Antibiotic Utilization
Friday, October 4, 2019: 12:15 PM