Participants in Arm A were allocated to voluntary use of CDSS by the clinician at first prescription of piperacillin–tazobactam or a carbapenem, while in Arm B, CDSS use was compulsory. PRF continued for both arms.

Results. Six hundred forty-one and 616 participants were included in Arms A and B, respectively. At baseline, Charlson's co-morbidity and APACHE II scores were comparable. Initial antibiotic prescriptions were similar, and the majority were for respiratory (67.0% vs. 68.2%) or urinary (17% vs. 19.6%) infections.

CDSS recommendations were provided to 20.6% of participants in Arm A and 99.4% in Arm B ($P < 0.01$). Arm B adopted a higher number of CDSS antibiotic de-escalation (1.1% vs. 2.6%), dose optimization (9.7% vs. 30.7%), antibiotic optimization (8.9% vs. 31.3%), and duration setting recommendations (10.9% vs. 50%). The proportion of participants receiving PRF recommendations were not, however, significantly different between arms (8% vs. 11.5%, $P = 0.13$). The types of PRF recommendations and prescriber acceptance rates were also similar. The duration of antibiotic use was significantly shorter when prescribers were compelled to use the CDSS (daily defined doses ≤3: 71.8% in Arm B, 64.9% in Arm A, $P < 0.01$). There was no evidence of harm from the CDSS, with similar 30-day mortality (HR 0.87, 95% CI 0.67–1.12), 30-day re-infection (20.6% vs. 23.1%, $P = 0.29$) and 30-day re-admission rates (14.4% vs. 14.1%, $P = 0.91$). The median length of hospital admission was also similar (15 IQR 5–64 vs. 15, IQR 4–70 days).

Conclusion. Compulsory use of a CDSS at antibiotic prescription did not reduce the requirement for PRF, but limited the duration of antibiotic courses, without compromising clinical outcomes

Disclosures. All authors: No reported disclosures.

187. Comparison of Active Versus Passive Strategies in Improving Compliance to Antimicrobial Stewardship Interventions

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Background. In Singapore General Hospital, the use of the Computerized Decision Support System (CDSS) is mandatory when antibiotics audited by the hospital antimicrobial stewardship program (ASP) are prescribed. It was envisioned that CDSS could, in part, replace the need for ASP review via prospective audit-feedback (PAF). However, quality of CDSS use is prescriber-dependent, and inappropriate use (diagnosis selected is incongruent with antibiotic indication specified in patient notes) was observed. We investigated the role of prescriber enablement and engagement as strategies to improve CDSS appropriateness rates (CAR).

Methods. A series of interventions was rolled-out in January 2018. Intervention 1 (I1) was implemented hospital wide—an expanded repertoire of antibiotic guidelines, display of CDSS selected diagnosis on the hospital's electronic medical record, education and publicity via mass emails. Intervention 2 (I2) involved conducting additional roadshows but only in selected clinical departments (one major medical and two major surgical departments). CAR (prospectively evaluated by ASP team) 3-months pre- and post-implementation of these interventions were compared using interrupted time-series analysis. Its potential impact on ASP manpower in place of PAF (30 minutes/case) was estimated.

Results. An average of 1,043 antibiotic courses, piperacillin–tazobactam (75.7%) as the most common, was prescribed with CDSS per month. Unspecified sepsis (51.5%) was the most common indication. Departments with I1 alone had mediocre improvement in CAR [66.8% ($n = 1,699$) vs. 68.9% ($n = 1,760$), $P = 0.10$], while departments that received a combination of I1 and I2 saw greater improvement in CAR, with a trend toward statistical significance [60.4% ($n = 354$) vs. 68.3% ($n = 393$), $P = 0.07$]. Improvement in CAR was most apparent in the surgical departments (50.6% vs. 59.4%, $P = 0.09$). This absolute increment in CAR meant manpower savings of 6.5 hours/month, and could potentially reach 41 hours/month had both interventions been implemented and similar results achieved hospital-wide.

Conclusion. Active prescriber engagement is pivotal in effectively obtaining buy-in to and success of ASP strategies.

Disclosures. All authors: No reported disclosures.

188. A Novel Inpatient Antibiotic Stewardship Assistance Program (ASAP) Using Real-Time Electronic Health Record Data, Prediction Modeling and Epidemiologic Data to Provide Personalized Empiric Antibiotic Recommendations

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Background. Antibiotic prescribing varies amongst clinicians, which can result in inappropriate or overuse. Inappropriate antibiotics can increase the risk of adverse drug events and multi-drug-resistant organisms (MDRO). Decreasing variability and increasing alignment with guideline-based therapy may improve antimicrobial stewardship and outcomes.

Methods. We developed a point of care stewardship tool embedded in the electronic health record (EHR) that provides empiric antibiotic recommendations for four syndromes, urinary tract infection (UTI), abdominal biliary infection (ABI), pneumonia, and cellulitis. We identified key variables that alter antibiotic selection or need for infectious disease (ID) consultation such as allergy history, immunosuppression and risk factors for MDRO, and mortality. We created algorithms of preferred empiric antibiotic choices based on national and hospital guidelines using these risk factors. We used a weighted incidence syndromic combined antibiogram (WISCA) prediction model to recommend ID consultation when likelihood of coverage was below a defined threshold. We also incorporated a home-grown epidemiologic tool that takes real-time data from outpatient clinics on incidence of influenza-like-illness (ILI) to recommend influenza PCR testing during periods of high ILI risk. Data on risk factors and WISCA variables including demographics, allergy history, ICD10 codes, vitals, laboratories, and microbiology results were extracted in real-time from the EHR and sent via URL into a web server which has an embedded Windows ASP.NET C# web site and an SQL server database. The web server was then embedded back into the EHR. This tool stores recommendations into the database for stewardship auditing.

Results. Thirteen key and 20 WISCA variables are extracted from the EHR in real-time. There are eight distinct antibiotic recommendations for UTI and ABI, 12 for cellulitis, and 40 for pneumonia. An illustration of the ASAP tool is shown in Figure 1.

Conclusion. ASAP is an HER-embedded platform that provides clinicians access to personalized antibiotic prescribing tied to best practices and optimal stewardship initiatives. Future work will look into the tool's effect on variation in care, antibiotic prescribing, and outcomes.

Figure 1:
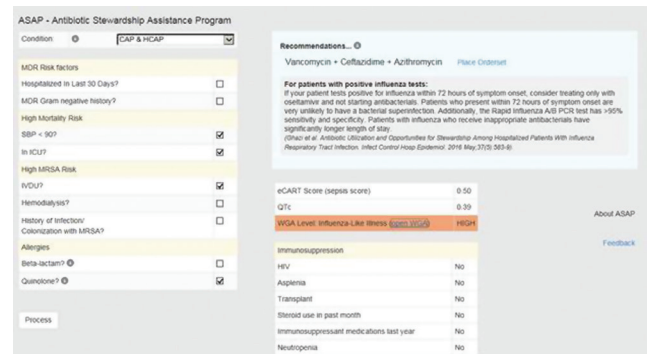
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189. Evaluating the Impact of Mandatory Indications on Antibiotic Utilization: A Retrospective Study

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Background. Mandatory indications for antimicrobial agents are recommended by a number of organizations to act as a force function, requiring prescribers to provide a reason for prescribing at the time of order entry. We evaluated the impact of introducing a mandatory indication field into electronic order entry for selected antibiotics on utilization of antibiotics at a large community hospital in the context of an established antimicrobial stewardship program.

Methods. A descriptive analysis of the mandatory indication fields for the study antibiotics (intravenous and enteral clindamycin, ciprofloxacin, metronidazole, moxifloxacin, and vancomycin) for adult patients 18 years and above for 1-year (December 1, 2015–November 30, 2016) postimplementation was conducted. An independent t-test was used to measure the primary outcome of change in drug utilization of study and control antibiotics before (6 months pre) and after (12 months post) the initiation of mandatory indications. Drug utilization was calculated as days of therapy (DOT)/1,000 patient-days for both the study and control antibiotics individually and as a group. Oral amoxicillin/clavulanate and intravenous piperacillin/tazobactam orders which have no mandatory indications were used to examine any associated shifts in antibiotic utilization.

Results. A total of 8,399 orders were evaluated in the 1-year post-implementation period; of which, 4,572 were for study antibiotics. The preset mandatory indications were selected 30–55% of the time. For the primary outcome, there was a statistically significant decrease in DOT/1,000 patient-days for study antibiotics as a group pre- and postintervention (mean 100 vs. 82, $P = 0.024$) as but not individually. However, there was a statistically significant increase in DOT/1,000 patient-days for the control