2042. Impact of an Antimicrobial Stewardship Program on the Healthcare-Associated Infections in a Third-Level Hospital in Yucatán, México

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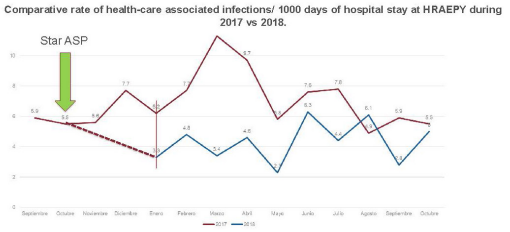
Background. Antimicrobial stewardship programs (ASPs) promote the responsible use of antimicrobials by limiting inappropriate use. This study evaluates the impact of a prospective ASP implementation on the health-care-associated infections (HCAIs) in a third-level hospital in Yucatán, México, after the establishment of an ASP in October 2017.

Methods. This was a prospective, single-center (Hospital de Alta de Especialidad de la Península de Yucatán -HRAEPY-), pre and post-intervention study, designed to analyze the impact of an ASP on health-care-associated infections rate, during January–October 2017 (pre-ASP) and January–October 2018 (post-ASP) by using comparative descriptive statistic of the monthly and annual rate of health-care-associated infections according to hospital network of epidemiological surveillance (RHOVE) in Mexico.

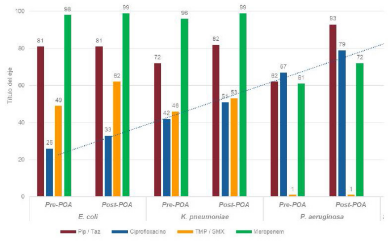
Results. During 2017, RHOVE reported 225 cases of HCAIs equivalent to a rate of 7.46/1,000 days of hospital stay. After ASP in 2018, the RHOVE reported 111 cases of HCAIs, equivalent to a rate of 4.38/1,000 days of hospital stay. This difference represented a reduction of −41.28% of the rate of HCAIs in the HRAEPY (Graphic 1). Antimicrobial susceptibility increased (pre-ASP vs. post-ASP) for 3 Gram-negatives associated with HCAIs at HRAEPY: TMP/SMX for *E. coli* (49% to 62%), Ciprofloxacino for *K. pneumoniae* (42% to 51%) and Piperacillin/Tazobactam (62% to 93%); Meropenem (61% to 72%) and Ciprofloxacino (67% to 79%) for *P. aeruginosa* (Graphic 2).

Conclusion. ASP contributed to reducing the rate of HCAIs in the HRAEPY when it was implemented as an additional measure to the strategies for control of nosocomial infections. Additionally, this ASP caused an increase in the bacterial susceptibility of the most important microorganisms as a cause of infections associated with healthcare in HRAEPY.

Graphic 1. Outcomes and impact of Antimicrobial Stewardship Program on health-care associated infections



Graphic 2. Outcomes and impact of Antimicrobial Stewardship Program on antimicrobial susceptibility at HRAEPY



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2043. The "Resistance Calculator": Refining Empiric Practices of Antimicrobials Prescription in the Era of Widespread Resistance

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Background. In the era of widespread resistance, there are two events in the course of a hospitalized septic patient where the majority of empiric prescription errors occur: (1) infections upon admission (UA) due to multi-drug-resistant organisms (MDRO) and (2) nosocomial infections due to extensively drug-resistant organisms (XDRO). These errors seriously impact patient outcomes and the ecological burden of resistance. Our objective was to develop a tool, to calculate the probability of MDRO UA, and nosocomial XDRO infections, in order to reduce delays in initiating appropriate therapy to the "right population," i.e., with "resistant pathogens," while avoiding overuse of broader (frequently more toxic⊓ less efficacious) therapeutics to the "wrong population," i.e., with "susceptible pathogens."

Methods. Retrospective case–control analyses were conducted for septic adults at Shamir Medical Center, Israel (2016). Logistic regression was used to develop models of risk factors. All parameters incorporated into the models were readily accessible at the point of care. The performances of the development cohorts, and on 8 other validation cohorts, were assessed by the area under the receiver operating characteristic curve (ROC AUC). A web calculator (mobile modifiable) was generated.

Results. A total of 4,199 patients were enrolled: 2,472 with sepsis UA, and 1,727 with nosocomial sepsis. The "MDR UA score" included 10 parameters and with a cutoff of ≥22 points, had a ROC AUC of 0.85 (sensitivity 86%, NPV 98%). The "Nosocomial XDR score" included 7 parameters and with a cutoff of ≥36 points, had a ROC AUC of 0.88 (sensitivity 90%, NPV 96%). The median ROC AUC was 0.75 among the validation cohorts of the "MDR UA score," and 0.66 among the "Nosocomial XDR score." A free web tool was generated: https://assafharofe.azurewebsites.net/.

Conclusion. A simple electronic calculator was generated to aid in bedside empiric prescription practices. The tool is composed of two scores to assist in common scenarios where the majority of errors occur. Prospective interventional investigations, should trial the performances of this tool in improving patient outcomes and the ecological burden in the facility.

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2044. An Assessment and Feedback Model Bringing Antimicrobial Stewardship Program Expertise to Long-Term Care Facilities

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Background. Long-term care facilities (LTCF) often struggle with implementation of antimicrobial stewardship programs (ASP) that meet all CDC core elements (CE). The CDC recommends partnership with infectious diseases (ID)/ASP experts to guide ASP implementation. The Nebraska Antimicrobial Stewardship Assessment and Promotion Program (ASAP) is an initiative funded by NE DHHS via a CDC grant to assist healthcare facilities with ASP implementation.

Methods. ASAP performed on-site baseline evaluation of ASP in 5 LTCF (42–293 beds) in the spring of 2017 using a 64-item questionnaire based on CDC CE. After interviewing ASP members, ASAP provided prioritized facility-specific recommendations for ASP implementation. LTCF were periodically contacted in the next 12 months to provide implementation support and evaluate progress. The number of CE met, recommendations implemented, antibiotic starts (AS) and days of therapy (DOT)/1000 resident-days (RD), and incidence of facility-onset *Clostridioides difficile* infections (FO-CDI) were compared 6 to 12 months before and after on-site visits. Paired t-test and Wilcoxon signed rank test were used for statistical analyses.

Results. Multidisciplinary ASP existed in all 5 facilities at baseline with medical directors (n = 2) or directors of nursing (n = 3) designated as team leads. Median CE implemented increased from 3 at baseline to 6 at the end of follow-up (P = 0.06). No LTCF had all 7 CE at baseline. By the end of one year, 2 facilities implemented all 7 CE with the remaining implementing 6 CE. LTCF not meeting all CE were only deficient in reporting ASP metrics to providers and staff. Among the 38 recommendations provided by ASAP, 82% were partially or fully implemented. Mean AS/1000 RD reduced by 19% from 10.1 at baseline to 8.2 post-intervention (P = 0.37) and DOT/1000 RD decreased by 21% from 91.7 to 72.5 (P = 0.20). The average incidence of FO-CDI decreased by 75% from 0.53 to 0.13 cases/10,000 RD (P = 0.25).

Conclusion. Assessment of LTCF ASP along with feedback for improvement by ID/ASP experts resulted in more programs meeting all 7 CE. Favorable reductions in antimicrobial use and CDI rates were also observed. Moving forward, the availability of these services should be expanded to all LTCFs struggling with ASP implementation.

Disclosures. **All authors:** No reported disclosures.

2045. GAIN (Generating Antimicrobial Stewardship Initiatives in Chicago Skilled Nursing Facilities) Collaborative Survey Results: CDC Core Elements of Antimicrobial Stewardship Compliance Assessment in 27 Chicago Skilled Nursing Facilities