HAITool: Supporting Clinical Pharmacist's Role on Antibiotic Stewardship through an Innovative Information System

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INTRODUCTION

Antibiotics are among the most prescribed and used drugs in clinical practice. However, it is estimated that 20-50% of AB are improperly prescribed.[1]

Antibiotic Stewardship Programs (ASP) contribute to the optimization of antimicrobial therapy, ensuring the proper use and minimizing side effects.[2]

STUDY AIM

To characterize the utilization of Antibiotics in an intensive care unit (ICU) of cardiac surgery, undergoing implementation of an ASP. The implementation is being made through the collaboration of a multidisciplinary team comprising Internists, cardiac surgeons, pharmacists and nurses (figure 1).

Pharmacists' role was to inform the physicians on the best available Antibiotics for specific conditions.
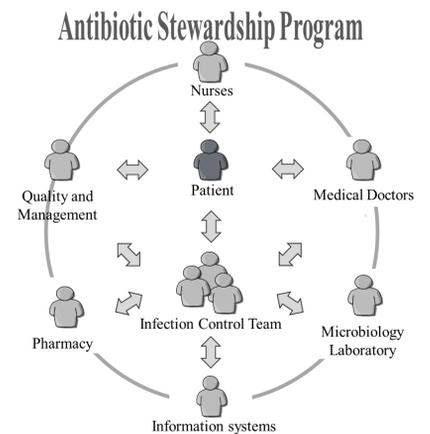

Figure 1: Multidisciplinary team for a hospital Antibiotic Stewardship Program
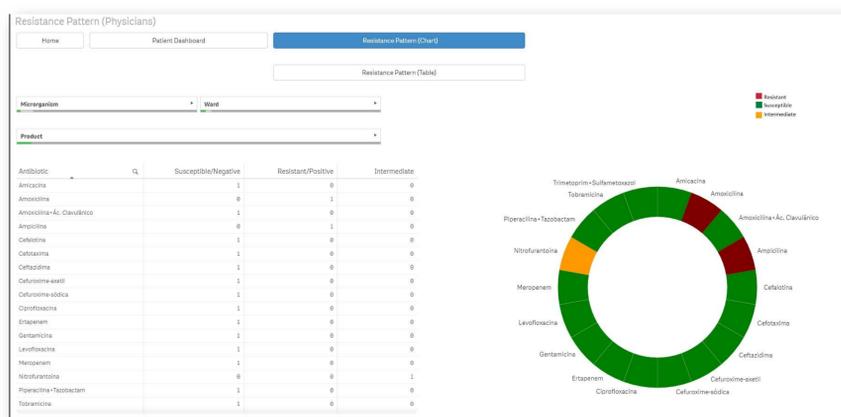
Figure 2: Antimicrobial susceptibility diagrams (Haitool's screenshot)

METHODS

The multiprofessional team visited the patients in the ICU ward weekly, focusing on patients with a length of stay higher than 7 days. Patients were submitted to Antibiotics prophylaxis with vancomycin and gentamicin, 48h prior to surgery. The focus of the intervention was the subsequent Antibiotics prescriptions.

A retrospective descriptive study will analyze quantitative data gathered 6 months before and 6 months after the implementation of the ASP.

RESULTS AND DISCUSSION

❑ The HAITool information system in this hospital enabled a quick access to information that was critical to inform the successful implementation of an ASP (figure 2);

❑ A reduction of 3.61% in the overall consumption of Antibiotics was observed, with some Antibiotics, such as Ciprofloxacine and Linezolide registering reductions of about 96% (figure 3);

❑ After six months of intervention, Gentamicin consumption decreased 1.32%, while Cefazoline increased its consumption 27.38% (figure 3);

❑ It is estimated that in 30% of the cases, a pharmacist intervention was necessary (e.g. dose adjustment or IV/Oral switch).
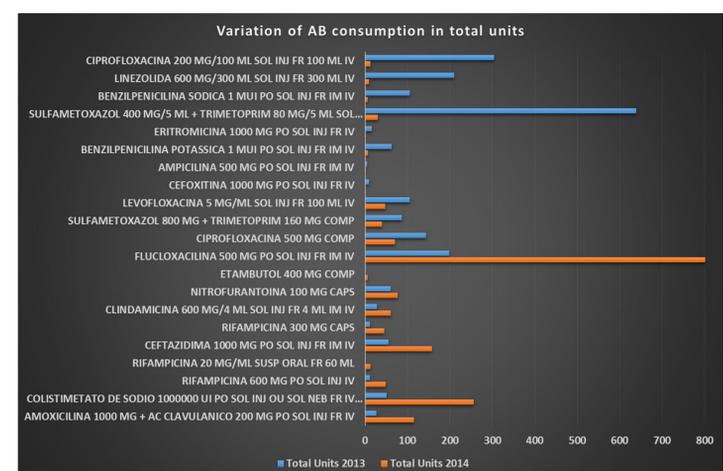

Figure 3: Annual variation of antibiotic consumption in the ICU ward

CONCLUSION

Pharmacists' intervention in this program was essential to decreasing Antibiotics consumption. Nevertheless, data regarding the total consumption in DDD per 1000 patients is still needed to strength the results analysis. However, the access to information on Antibiotics use, microbiology data and prescription patterns, via this evidence-based tool for ASP, was considered a major driver of success. A better use and access to the information on Antibiotics use, microbiology data and prescription patterns in the unit, will allow better tailored solutions to aid professionals in the implementation of ASP.

REFERENCES:

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2 - Davey P, Brown E, Charani E, Fenelon L, Gould IM, Holmes A, et al. Interventions to improve antibiotic prescribing practices for hospital inpatients. Cochrane Database Syst Rev. 2013/05/02 ed. 2013;4:CD003543.