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Costa Rica

The Global Point Prevalence Survey of Antimicrobial Consumption and Resistance (Global-PPS)
Results of prescriptive antimicrobials in a Costa Rican Hospital

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INTRODUCTION AND PURPOSE

The knowledge of antimicrobial consumption is critical in all medical centers. It gives the information of how effective the prescriptions are made as well as the clues to establish antibiotic stewardship programs that can correct the course of bacterial resistance and nosocomial infections. The aim is to establish the prevalence of antimicrobial consumption in Hospital Mexico during the period of time between February 14-15, 2015, and to give clues on how to improve it.

METHODS

The information was collected retrospectively in February, 2015 using the standardized and validated forms. Detailed data was collected for all inpatients receiving at least one antimicrobial treatment on the day of the survey and completely anonymously entered online using a web-based tool for data-entry, validation and reporting as designed by the University of Antwerp (www.global-pps.com). The denominator included all admitted inpatients, collected at ward level.

RESULTS

Data included 438 patients who were admitted in our hospital. The overall antimicrobial prevalence rate was 37,7%, which is higher than the rate Eastern Europe reported (27,4%), but is lower when it´s compared with North America (38,6%). From the 133 prescriptions reported, 25,4% for medical/surgical prophylaxis were prescribed; the nosocomial infections were 46% (n=60), and the community acquired were 28,4% (n=37). The surgical prophylaxis applied was one single dose or for only 24 hours in 53% of the cases, this compliance was superior compared to Europe and South America. (Figure 1). When excluding prophylaxis, 45% (n=60) of the treatments were empiric and 54,1% (n=72) were targeted (Table 1).

Table 1. Distribution of the antimicrobial prescriptions in wards and type of indication

Ward	N Prescriptions	N Empiric Tx	% Empiric	N Target Tx	% Target
Emergency room	3	3	100%	0	0
Neonates	5	4	80%	1	20%
Obstetrics/Gyn	4	2	50%	2	50%
Hematology	11	7	63,6%	4	36%
Oncology	5	2	40%	3	60%
Surgery	39	15	38,5%	24	62%
Medicine	48	21	43,8%	27	56%
ICU	18	6	33,3%	11	61%
Total	**133**	**60**	**45,1%**	**72**	**54,1%**

Table 2. Distribution of the Resistant pathogens (ESKAPE and ESBLs) with targeted treatment

	Costa Rica		Europe	
Pathogen	**N patients**	**%**	**N patients**	**%**
MRSA	11	9.1%	164	1.2%
MRcoNS	2	1.7%	79	0.6%
VRE	0	0	44	0.3%
ESBLs	6	5%	332	2.4%
Cephalosporin resistant non ESBLs	2	1.7%	102	0.7%
CRE	0	0	37	0.3%
ESBL non fermenters	2	1.7%	59	0.4%
Carbapenem resistant non fermenters	1	0.8%	92	0.7%
Other MDR	1	0.8%	143	1.0%
Total	25	20,8%	943	6.8%

From all the targeted treatments, non resistant pathogens represent 65,3% of the patients that were treated (Figure 2). The meticilin resistant *Staphylococcus aureus* was the most common resistant pathogen isolated amongst all the samples collected (Table 2). The use of biomarkers to guide treatment represent 90,7% (n=88) of all patients treated (n=97). The number of antibiotic treatments prescribed during the study was 159. The distribution of these drugs is showed in Figure 3. The third-generation cephalosporins were the most common antibiotic used in our hospital (17%). As a group, the beta-lactams were the most frequently used, from which the third-generation cephalosporins represented 39% of this group.

Figure 2. Distribution of the pathogens treated by Resistant or non resistant

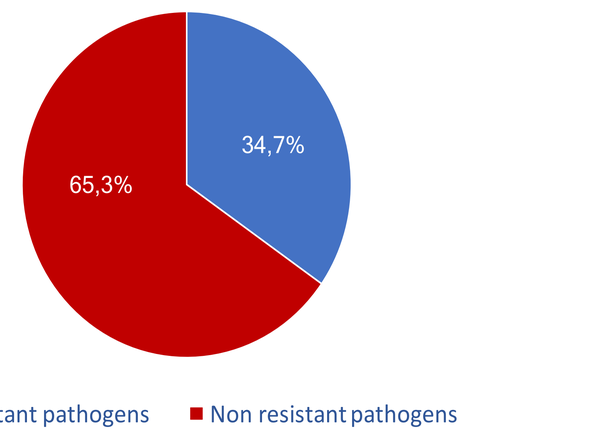


Figure 1. Duration of surgical prophylaxis in adults and children.

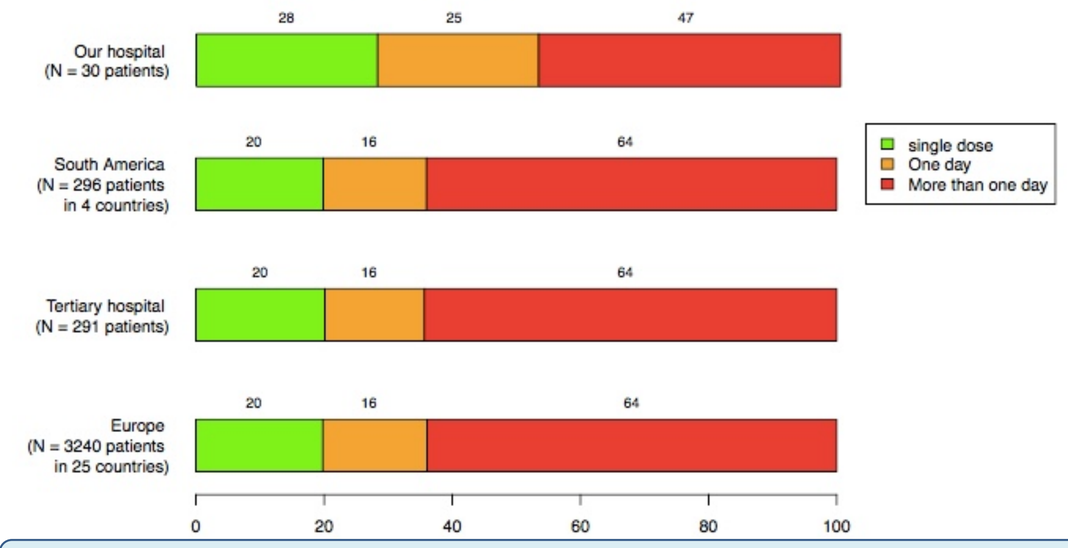
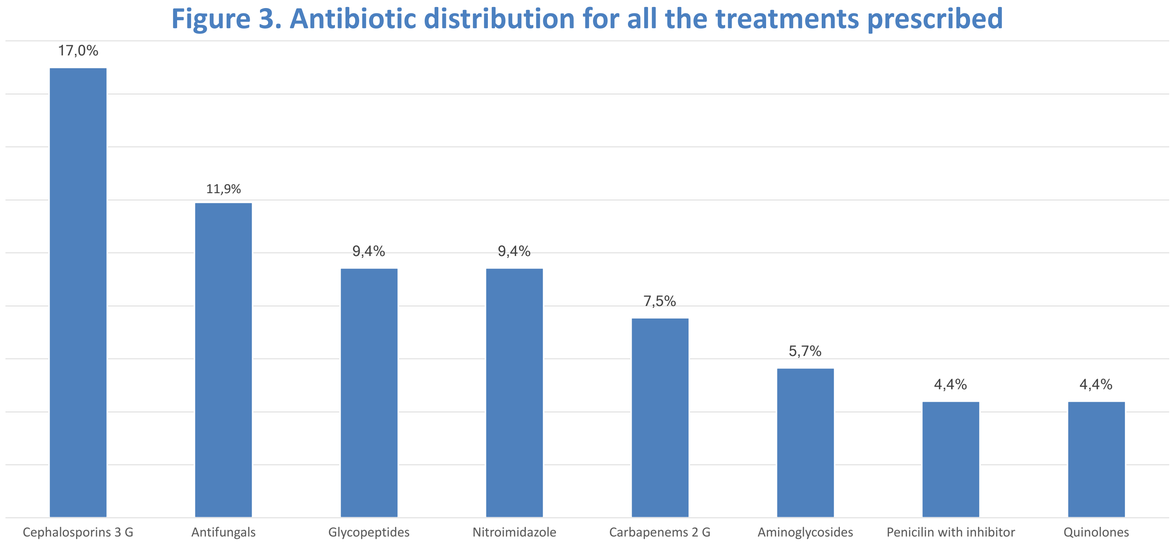


Figure 3. Antibiotic distribution for all the treatments prescribed



CONCLUSION

We identified several targets to improve: number of nosocomial treatments that could be prevented, number of empiric treatments that could be overtreated and the excess of selective pressure made to our microorganisms with the third-generation cephalosporins. We aim to make policies from these three important issues in order to improve antibiotic prescribing and reduce hospital acquired infections. Also, strong efforts have to be made to educate colleagues to search tissue samples intensively. This is important to guide treatment and minimize the impact of treatment in patients´ microbiota as well as in hospital´s microorganism resistance.

Disclosures: “bioMérieux is the sole sponsor of the GLOBAL Point Prevalence Survey. The funder has no role in study design, data collection, data analysis, data interpretation, or writing the report. Data are strictly confidential and stored anonymous at the coordinating centre of the University of Antwerp.”