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Addressing outpatient antibiotic prescribing

The PIRASOA® programme: implementation and first outcomes of an antimicrobial stewardship programme based on educational interviews in primary care of the public health system of Andalusia, Spain.

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Background: Improving the appropriate use of antibiotics in Primary Care (PC) is an increasing priority for health services. While improvement in antimicrobial usage is a worthy endpoint in and of itself, acceptance of antimicrobial stewardship programs (ASP) will be contingent on demonstration of positive effects on clinical and microbiological outcomes. Our aim was to assess the impact of institutional ASP carried out in PC in Andalusia (Spain) (PIRASOA program) on antimicrobial use, costs and microbiologic outcomes.

Material/methods: PIRASOA started on January 1st , 2014. PIRASOA consisted on a training programme directed towards all antibiotic prescribers in Hospitals and PC. The main activity consisted on counselling interviews carried out by clinical experts. Other activities consisted on the update of the local empirical treatment guidelines and antibiotic quality prescribing monitorization. Data were prospectively recorded until June 30, 2015. Setting: all the PC areas of the Andalusian Public Health System. Outcomes: the proportion of appropriate antimicrobial use, quantity of total antimicrobial use (defined daily doses per 1,000 patient days, DHD), and the rate of infections due to specified resistant organisms (incidence density: cases per 1000/population).

Results: A total of 23,984 counselling interviews were performed during the first year of the programme. The most frequently performed assessments were for empirical prescriptions (91%). During the first year of the programme, an overall rate of inappropriate antimicrobial treatments of 41% was observed. At the initiation of the programme, inappropriateness rose to 46%. At the end of the study period, inappropriateness decreased to 36%. Selection of an inappropriate agent was the most frequent error (36%), followed by an inappropriate treatment duration (32%), inappropriate dose (21%) and unnecessary antibiotic treatment (11%). During the first 6 quarters of the programme the antibiotic pressure was 24.4; 19.8; 16.6; 21.1; 27.3 and 19.6 DHD respectively, showing a seasonal distribution with a maximum value in the first trimester of each year, coincident with the influenza epidemic, which was more intense in 2015 (306.5 vs. 253.6 cases/100000 hab.; +21%) and prolonged (8 vs. 7 weeks; +14%) than in 2014. During the study time there has been a tendency to decrease the consumption of ciprofloxacin (1.18 DHD in the first quarter vs. 1.01 in the last quarter), and an increase in fosfomicin

(0.13 DHD in the first quarter vs. 0.19 in the last quarter) according to the recommendations of the programme. And the rate of infections by ESBL *Escherichia coli* showed a trend to decrease throughout the 6 quarters (incidence density: 0.19; 0.16; 0.17; 0.15; 0.14 and 0.14).

Conclusions: We have successfully implemented an integral ASP in all primary care of the region. The preliminary outcomes showed a trend towards an improvement in the quality of prescriptions and a change in the prescription profile.