

PRESCRIPTION OF QUINOLONES, CARBAPENEMS AND ANTI-MRSA AGENTS IN THE EMERGENCY DEPARTMENT OF A DISTRICT HOSPITAL: INTERVENTIONS AND DEVELOPMENT OVER 3 YEARS

CP-199

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INTRODUCTION

The misuse of quinolones, carbapenems and anti-MRSA agents contributes to the emergence of resistant strains, and their use should be as controlled as possible. The emergency department is a place of choice for the implementation of policies that promote the rational use of antibiotics, knowing that most hospital antibiotics are initiated empirically in these services, and are tended to be maintained during hospitalization.

Beatriz Angelo Hospital (HBA) is a paper-free hospital equipped with an electronic conditioned prescription system, which provides automatic, real-time email notifications whenever there is a mismatch between the chosen agent and the context (specific infections or prophylaxis), or whenever controlled prescription agents are prescribed (quinolones, carbapenems, anti-MRSA agents, among others), allowing the rapid onset of antibiotic stewardship measures (see Fig 1).

PURPOSE

To assess the use of conditioned antibiotics in patients admitted to the General Emergency Service (SUG) of the HBA, based on sampling for the months of March of 2014, 2015 and 2016.

METHODS

Retrospective analysis of automatically generated notifications in the context of prescription for conditioned antibiotics in the referred period (see Fig 1).

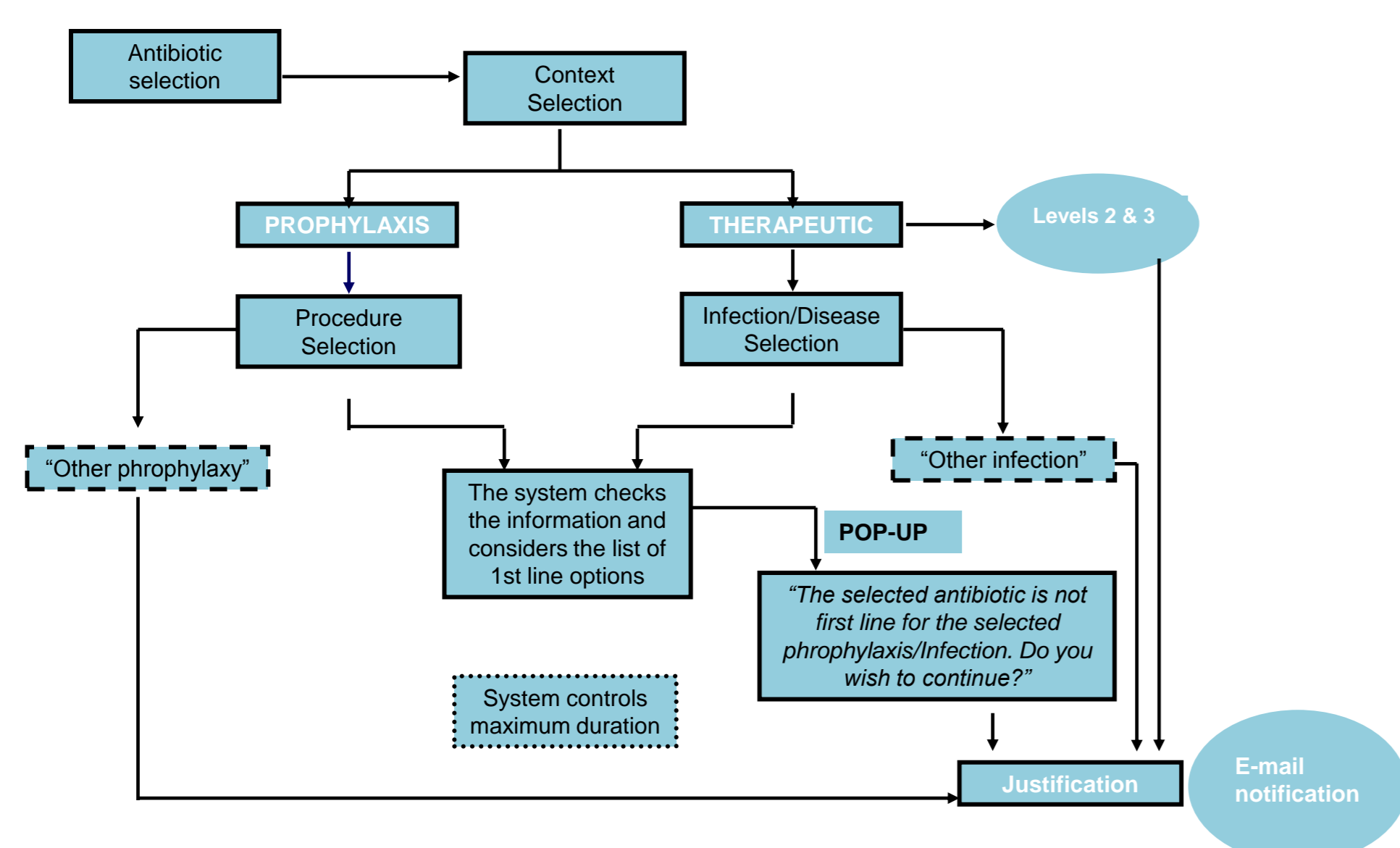


Fig 1: Electronic condition-based prescription system, which results in automatic email notifications.

REFERENCES

- Arnold, FW *et al.* "Improving antimicrobial use: longitudinal assessment of an antimicrobial team including a clinical pharmacist". *J Manag Care Pharm.* 2004. 10 (2):152-8.
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- Programa de Prevenção e Controlo de Infecções e de Resistências aos Antimicrobianos. Direcção-Geral de Saúde. 2015.
- Vieira, AL *et al.* "Antibioterapia na Urgência. Adequabilidade de Prescrição". 2013.

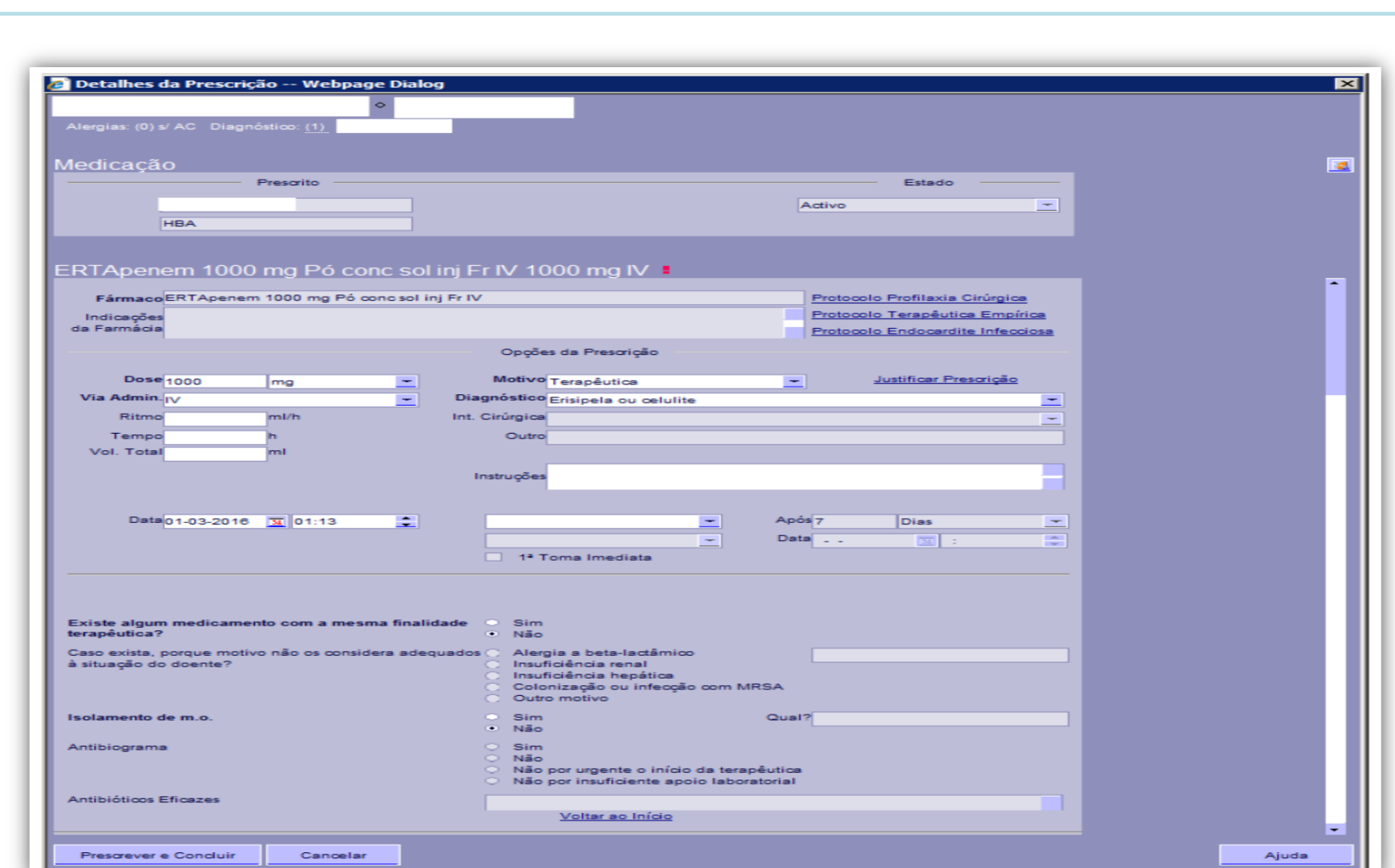


Fig 2: Prescription and justification platform on the e-clinical file.

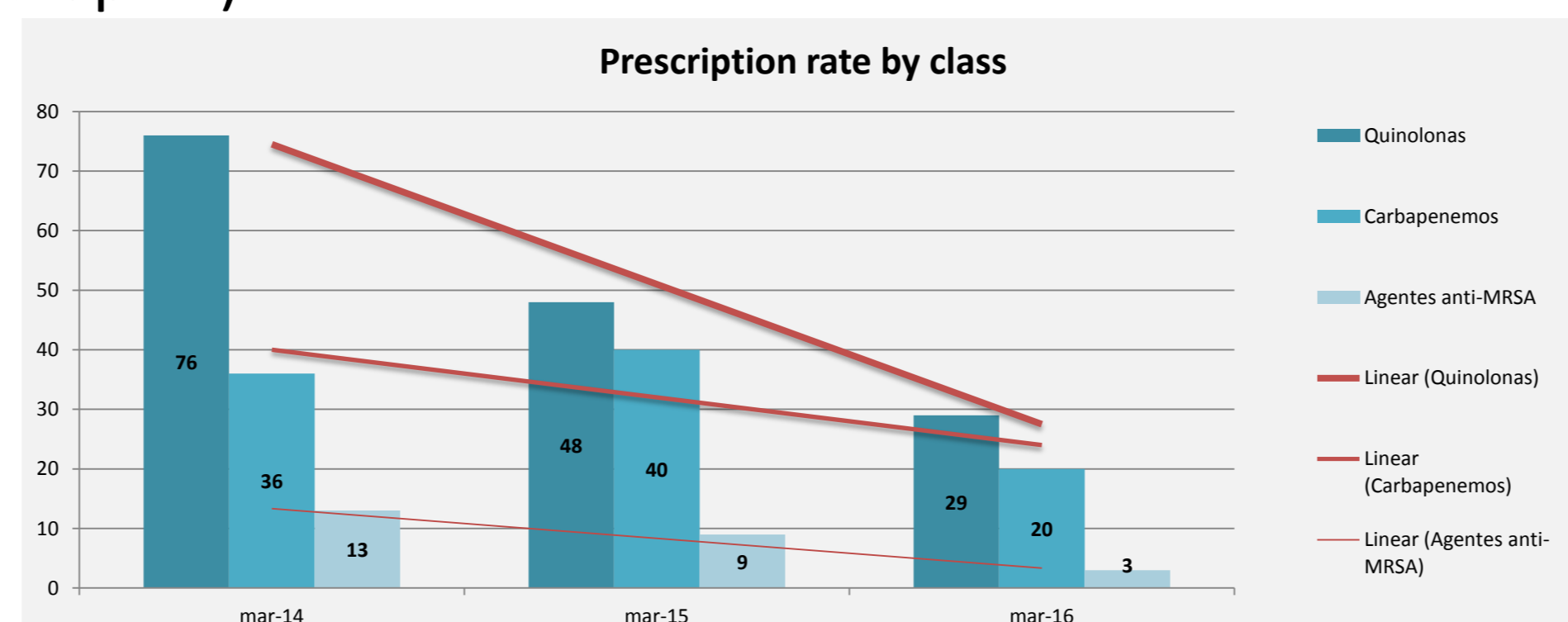
From: no-reply@hbeatrizangelo.pt [mailto:no-reply@hbeatrizangelo.pt]
Sent: terça-feira, 1 de Março de 2016 01:19
To: CCI-Antibioticos@HBA
Subject: Justificação de Anti-Infeciosos de prescrição condicionada - SUG LA PEC / NULL

JUSTIFICAÇÃO DE ANTI-INFECIOSOS DE PRESCRIÇÃO CONDICIONADA	
Serviço/Médico Requirante	
Serviço:	Medicina Interna
Data da Prescrição:	01.03.2016 01:13:00
Médico Requirante	
Identificação do Doente	
Nome:	
NP:	
Motivo da Prescrição	
Motivo:	Terapêutica
Diagnóstico:	Erisipela ou celulite
Medicamento	
Nome:	ERTApemem 1000 mg Po conc sol inj Fr IV
Dose:	1000 mg
Via de administração:	IV
Frequência:	1x/Dia-23
Duração:	7 d
Justificação de Prescrição Condicionada	
Existe algum medicamento com a mesma finalidade terapêutica?	
Não	
Caso exista, porque motivo não o considera adequados a situação do doente?	
Isolamento de m.o. Qual?	
Não	
Antibiograma	
Antibióticos Eficazes	

Fig 3: Automatically generated notifications in the context of antibiotic prescription sent by e-mail.

RESULTS

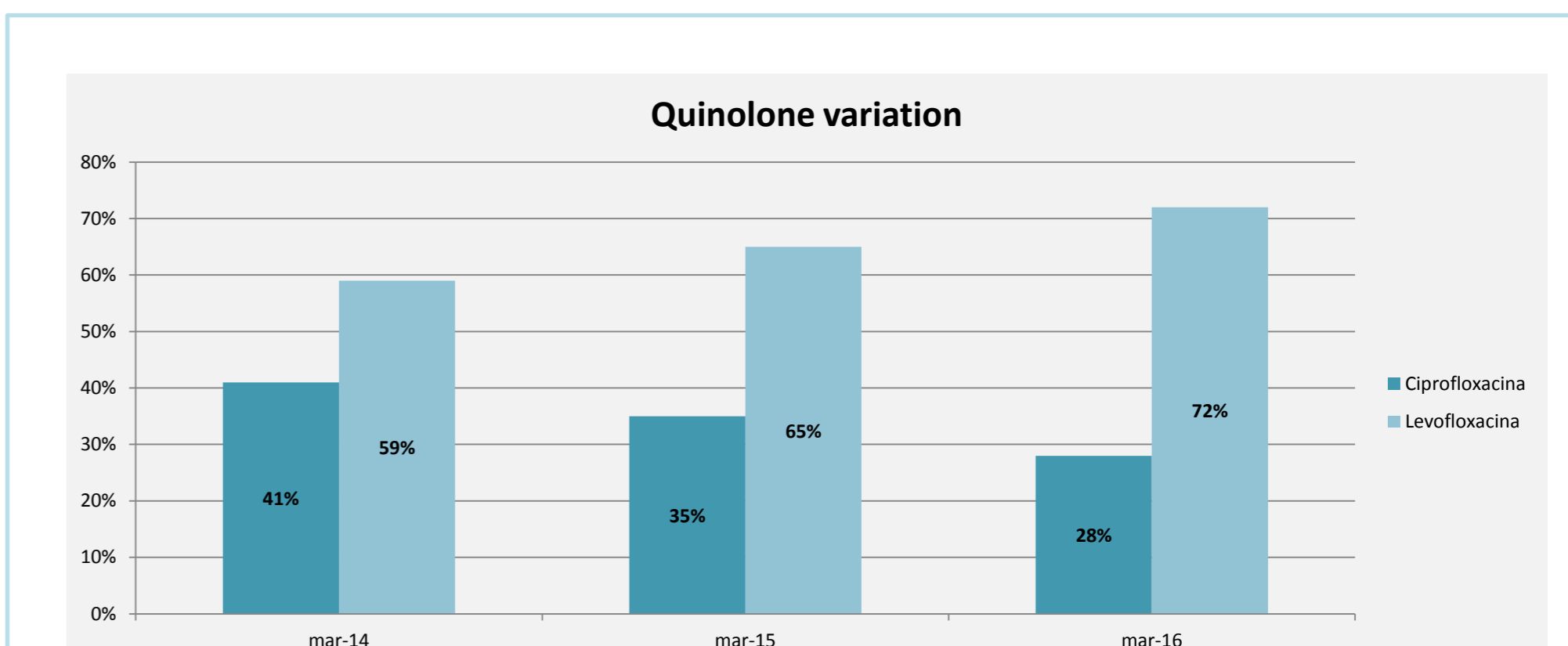
In the reviewed period, the prescription system generated the following notifications in the three consecutive years: **Quinolones**: n = 76, 48 and 29 (62% reduction between 2014 and 2016); **Carbapenems**: n = 36, 40 and 20 (44% reduction); **Anti-MRSA agents**: n = 13, 9 and 3 (77% reduction) (see Graph 1).



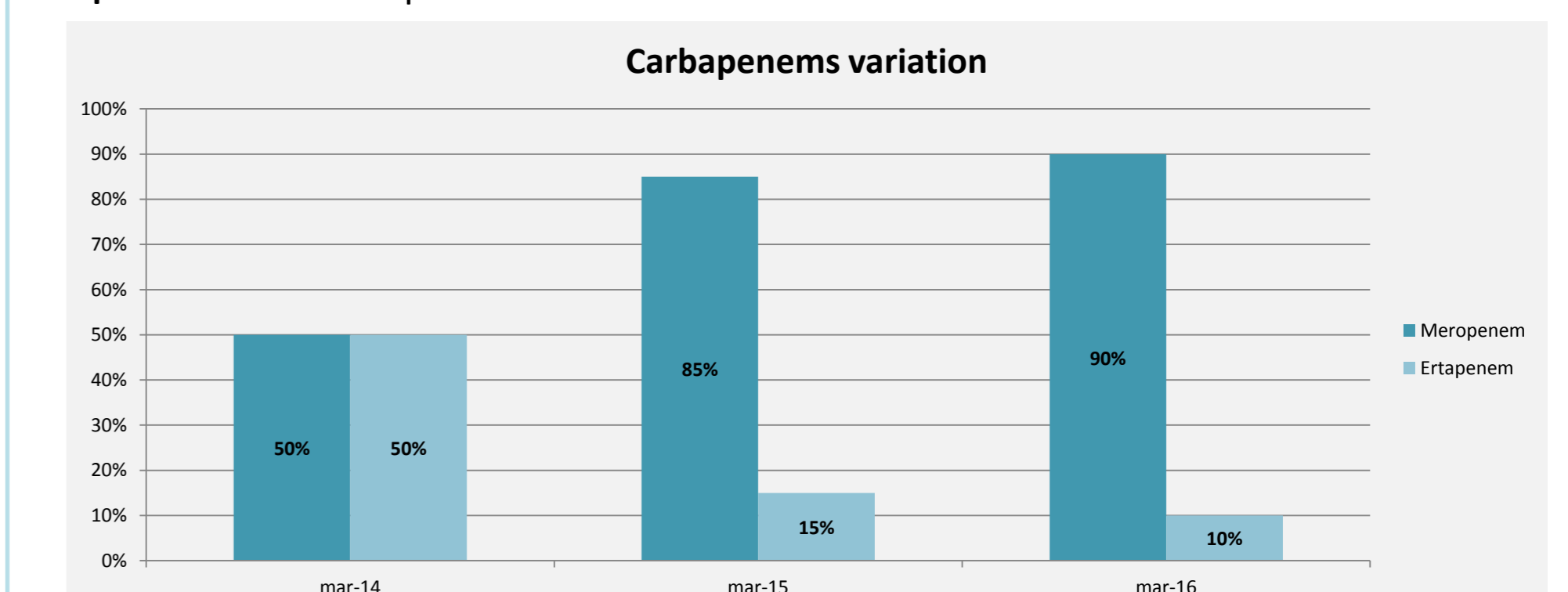
Graph 1: Evolution of the use of the different classes of antimicrobials in the SUG.

Levofloxacin constituted the most prescribed quinolone representing, respectively, 59%, 65% and 72% of the total quinolones (see Graph 2).

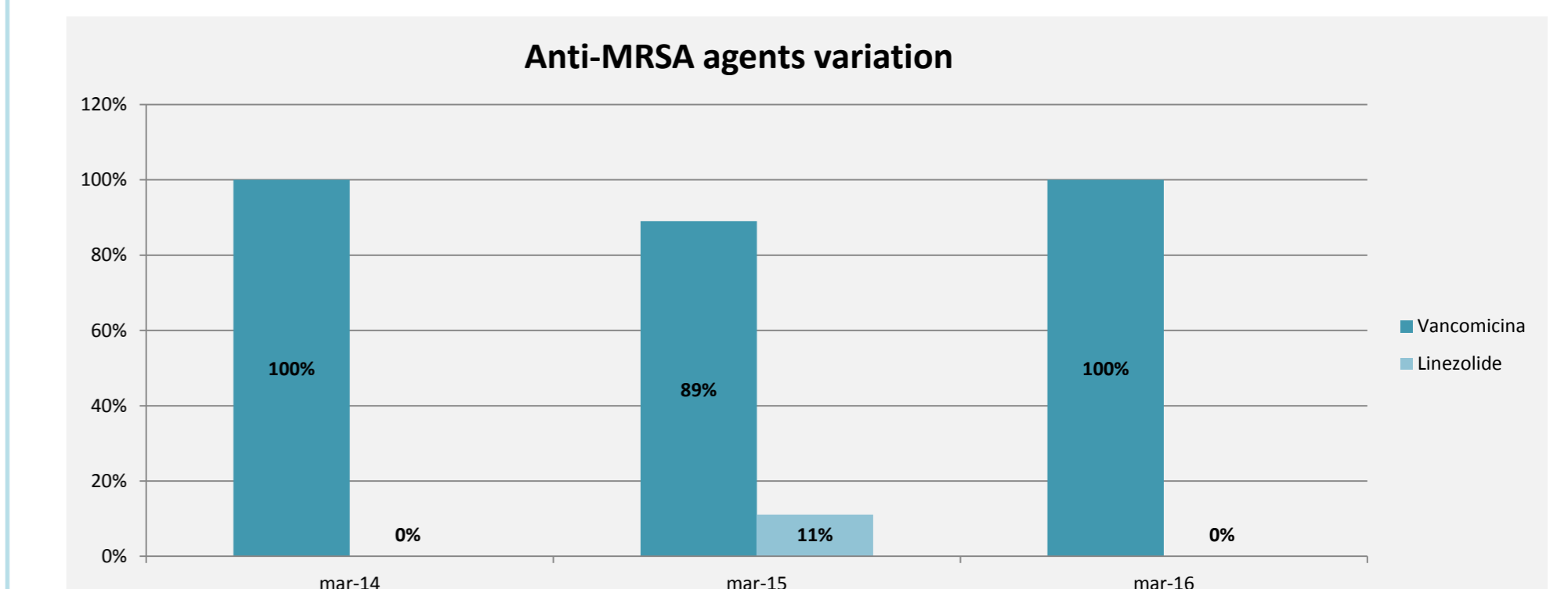
Regarding carbapenems, Meropenem represented, respectively, 50%, 85% and 90% (see Graph 3). Finally, in regarding to anti-MRSA agents, the reports were almost exclusively from Vancomycin, respectively, 100%, 89% and 100% of anti-MRSA agents (see Graph 4).



Graph 2: Evolution of quinolones use in the SUG.



Graph 3: Evolution of carbapenems use in the SUG.



Graph 4: Evolution of anti-MRSA use in the SUG.

The quinolones were mainly used in infections of the urinary and respiratory tract; carbapenems in urinary tract infections, skin and soft tissue infections, and bone. Anti-MRSA agents predominated in skin and soft tissue infections, and bone.

In 2014, 2015 and 2016, hospitalizations trough SUG were respectively, 882, 878 and 906 (2.7% from 2014 to 2016).

CONCLUSIONS

In spite of the increase in the number of hospitalizations and the increasing incidence of ESBL-producing gram negative from abroad (main limitation for the reduction of the use of carbapenems) in the period under analysis, a significant overall reduction of the initial prescription of quinolones and anti-MRSA agents and, to a lesser extent, carbapenems, was observed.

This evolution reflects the phased intervention efforts initiated with the introduction of the single dose distribution for patients hospitalized in the SUG (in the end of 2014), their respective pharmaceutical validation and on-site intervention. These are reinforced with the analysis of the notifications issued by the GCL-PPCIRA (Local Control Group of the Program for Prevention and Control of Infections and Resistance to Antimicrobials) under the scope of antibiotic stewardship (early 2015), along with actions of training and awareness-raising for doctors.

This work shows how it is possible, through a concerted and multiprofessional intervention, within the framework of antibiotic stewardship, to reduce in a very significant way the use of conditioned prescription antibiotics.

