

Trend analysis in antibiotic consumption and bacterial resistance in *Enterococcus faecium* and *Staphylococcus aureus* in a teaching Hospital in Bogotá, Colombia 2012-2016

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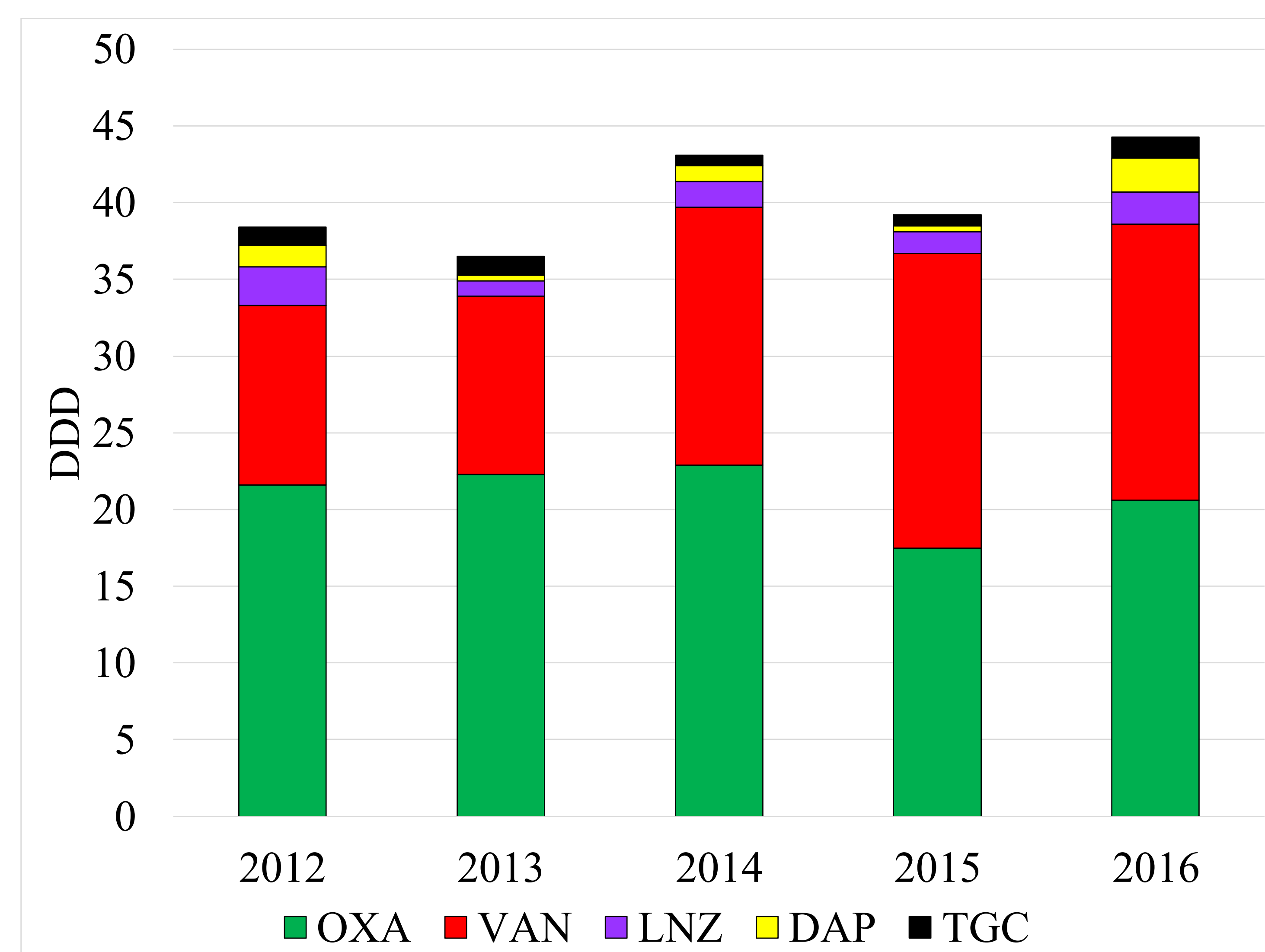


FIGURE 1.

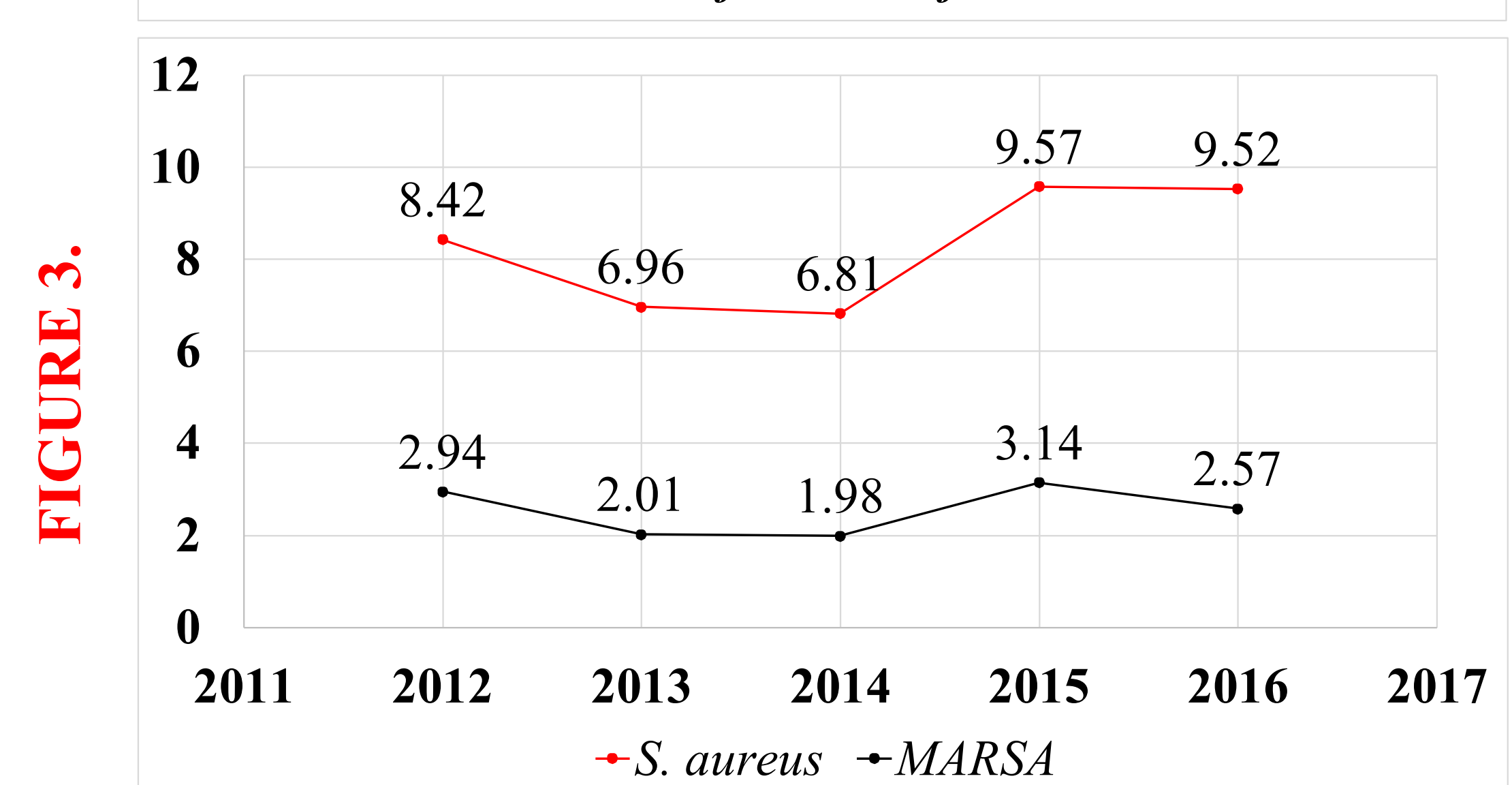
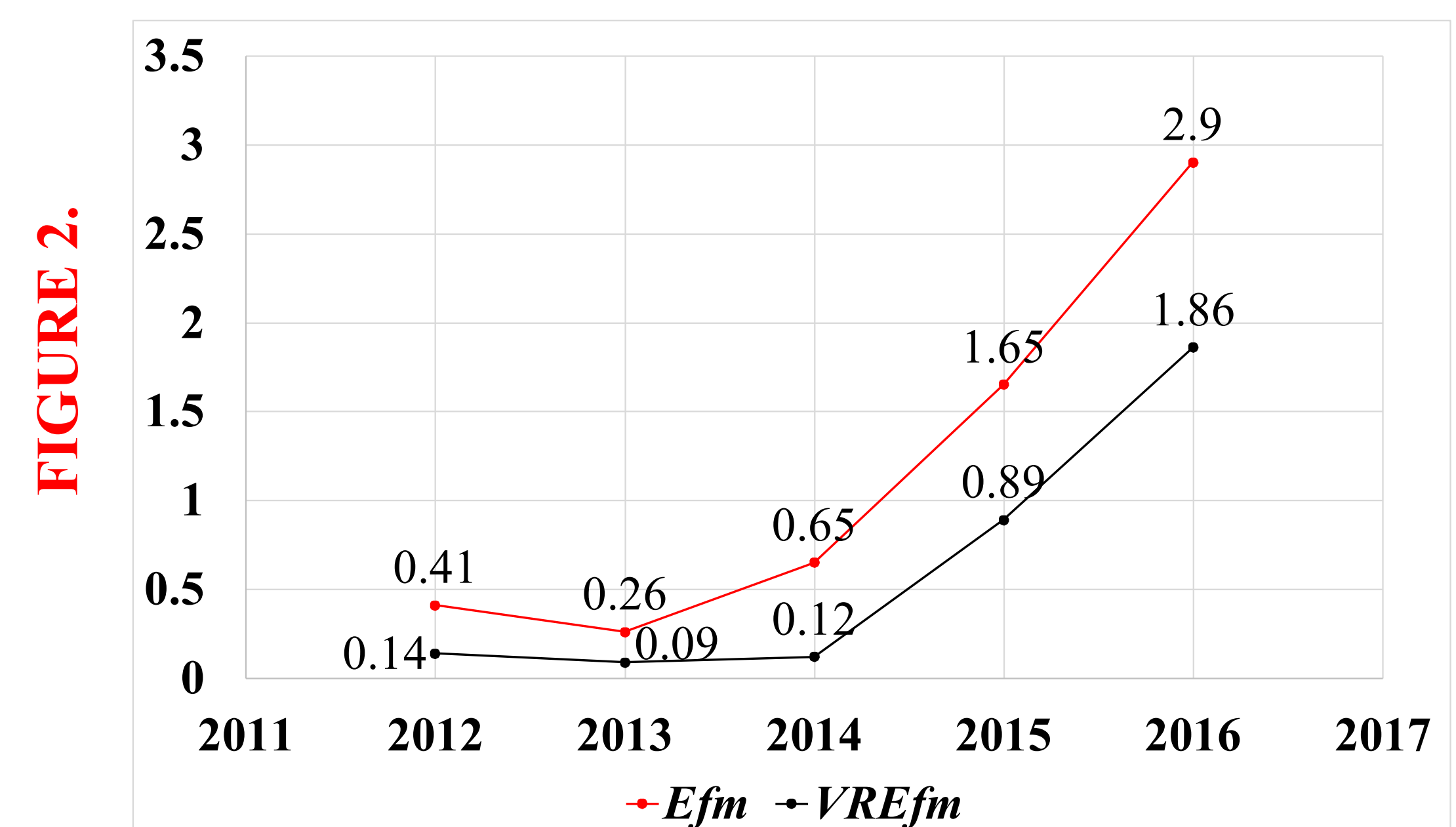


FIGURE 1. Annual antibiotic consumption by ATC/DDD system. OXA, Oxacillin; VAN, Vancomycin; LNZ, Linezolid; DAP, Daptomycin, TGC, Tigecycline, during the period 2012–2016.

FIGURE 2. *S. aureus* annual incidence according to Methicillin-resistant profile per 1,000 patients during 2012 to 2016.

FIGURE 3. *Enterococcus faecium* annual incidence according to Vancomycin-resistant profile per 1,000 patients during 2012 to 2016.

ABSTRACT

Antimicrobial Stewardship (AS) is defined as the coordinated interventions, within Healthcare settings, promoting the appropriate use of antimicrobials and optimizing clinical outcomes related to antimicrobial use, as well as limiting the selection of resistant strains. This study was aimed at monitoring main antibiotic consumption used to treat Gram-positive bacteria and their susceptibility/resistance patterns, as the pre-intervention strategy to implement AS in our Hospital.

MATERIAL AND METHODS

Consumption of five antibiotics (oxacillin, vancomycin, linezolid, daptomycin and tigecyclin) was monitored by 5 year-period in a 802-bed hospital in Bogotá, Colombia. Such five antibiotics are mainly used to treat gram-positive bacterial infections, including the ones caused by *Staphylococcus aureus* (*S. aureus*), Methicillin-resistant *Staphylococcus aureus* (MRSA), *Enterococcus faecium* (*Efm*) and Vancomycin-resistant *Enterococcus faecium* (VREfm). According to the WHO, the Daily Dose Definition is the assumed average maintenance dose per day for a drug used for its main indication in adults; and it was here chosen as the elected parameter to monitor annual antibiotic consumption. Susceptible/resistant profiles of these bacteria were included.

RESULTS

Global antibiotic consumption (included in this study) calculated by DDD/100 occupied bed-days during 2012-2016 was 45.5 for 2012, 42.2 for 2013, 54.1 for 2014, 53.1 for 2015 and 63.1 for 2016. Vancomycin was the antibiotic with the greatest fluctuation, with a DDD of 11.7 for 2012 and 18 for 2016. MRSA susceptibility patterns have remained variable during the last 5 years, with an absolute increase in the annual incidence of *S. aureus* and decrease of MRSA. Incidence of *Efm* and VREfm have remained steadily increased over the years.

CONCLUSION

A global increase in antibiotic consumption was observed in this period of time. One reason for the increase in Vancomycin consumption could be the global burden annual rise of *Efm*. Resistant patterns of *S. aureus* and *Efm* in the Hospital followed the same global and national tendencies during the past 5 years. The results shown here provide a strategic baseline for comparison after implementing AS in our Hospital.

REFERENCES

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