

Background

Although antimicrobial stewardship programs are one of the highest priorities in healthcare systems the appropriate use of antifungal agents has not been widely studied. Breakthrough infections from resistant candida species have arisen speculation over the deviation from the guidelines.

Purpose

The aim of the present study is:

- To examine the distribution of Candida species.
- To assess the percentage of patients to whom antifungal treatment de-escalated after the identification of the susceptibility of the strain according to the guidelines.
- To calculate the financial cost, in those cases where the patient met the criteria to de-escalate antifungal therapy or to continue therapy with fluconazole but they did not.
- To observe a potential increase in the MICs of echinocandins and liposomal amphotericin-B.

Material and Methods

A retrospective analysis (2011-2016) of patients clinical data with confirmed candidemia was performed. Data obtained from patients records, the microbiology laboratory and the pharmacy department. Patients were screened according to the following criteria:

- Patients aged above 18 years.
- Blood cultures positive for Candida species.
- Empirical therapy until culture results were obtained.
- Strain of Candida species susceptible to fluconazole.

Results

- Isolated candida species are displayed at Figure 1.

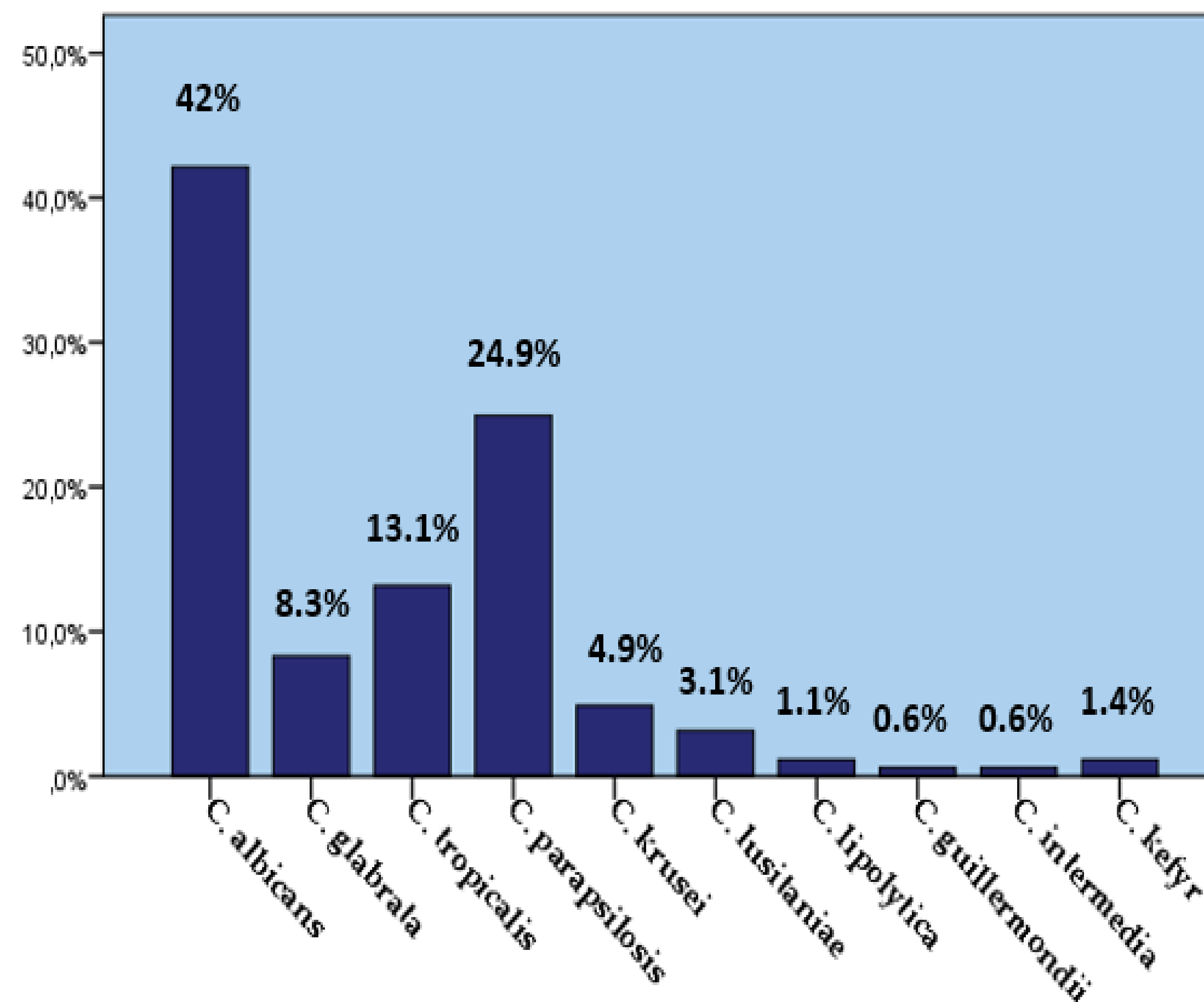


Figure 1: Isolated candida species

- From the overall 150 patients with confirmed candidemia 58 were received azoles, 74 echinocandins and 18 liposomal amphotericin-B for empirical therapy.
- 51 patients were eligible to de-escalate to fluconazole but only 23 patients did so. (Figure 2)
- Furthermore, 9 patients from fluconazole re-escalated unjustified to echinocandins or liposomal amphotericin-B. (Figure 2)

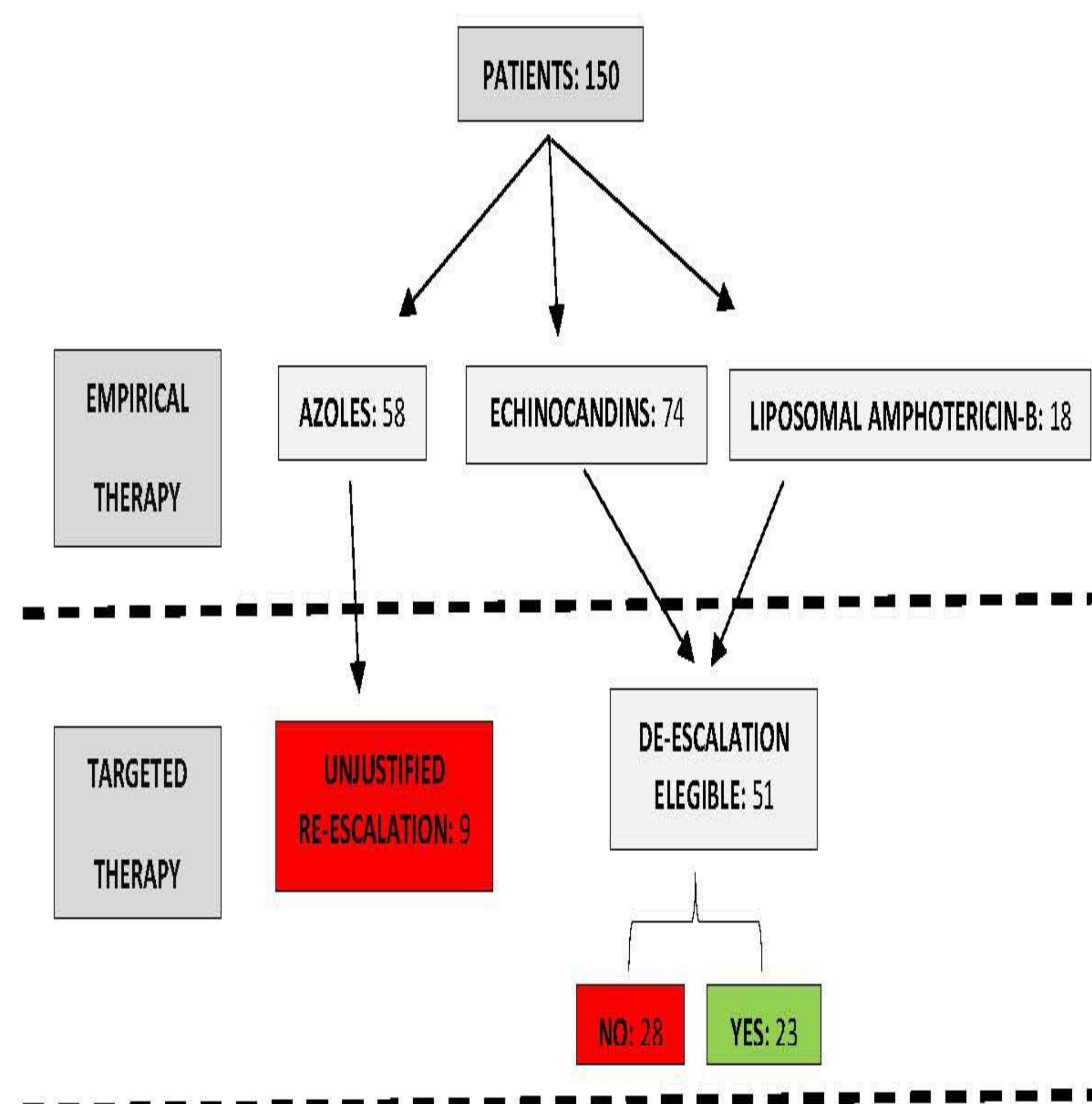


Figure 2: Characteristics of the study and treatment

- The financial loss for health care system due to high prices of echinocandins and liposomal amphotericin-B versus fluconazole, reached 211.837 €. (Figure 3)

Results

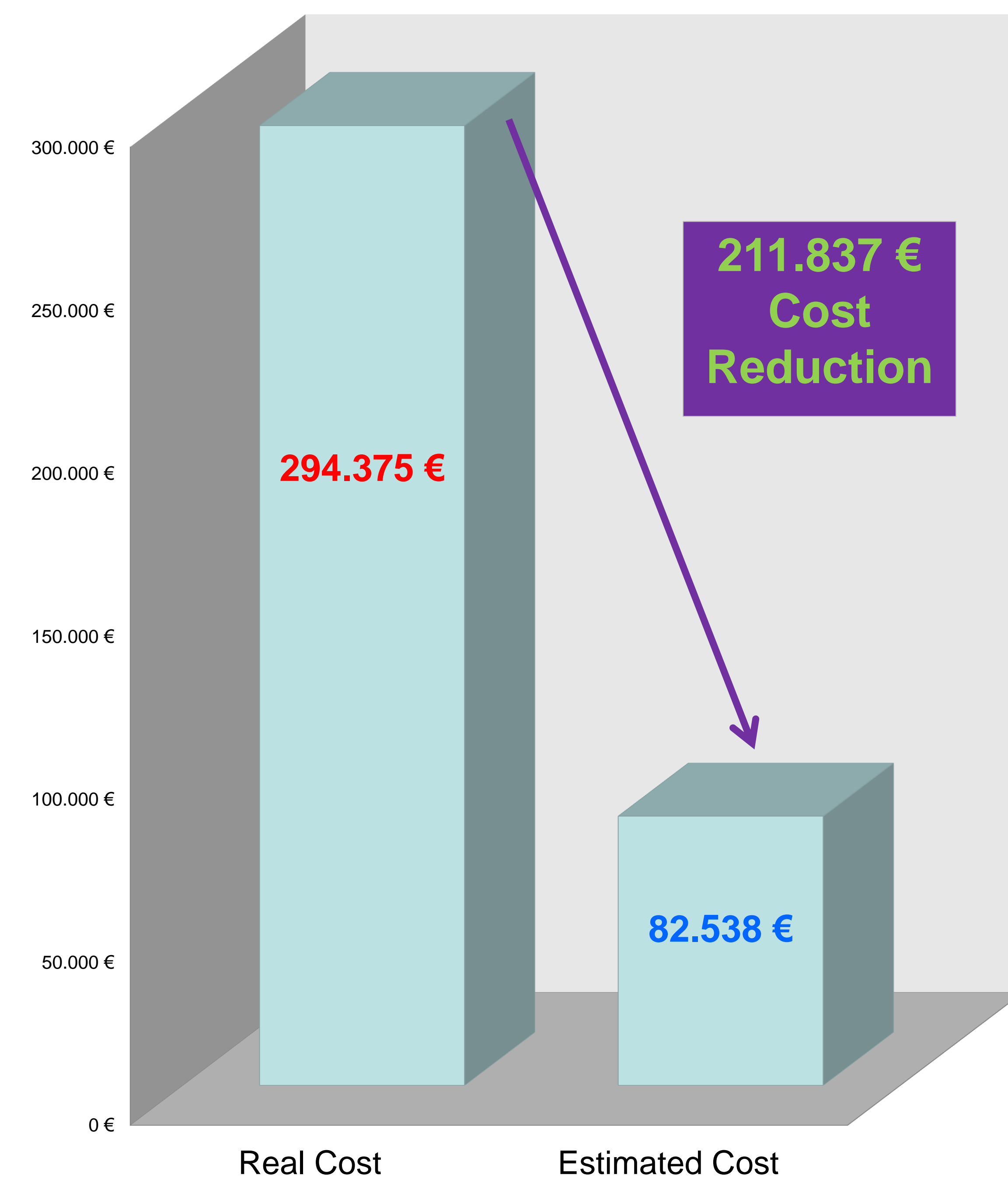


Figure 3: Real cost versus estimated cost

- Interestingly, one strain of *C. albicans* and two strains of *C. glabrata* were found to be resistant to echinocandins.

Conclusions

Our data indicate that empirical antifungal therapy were appropriate, however, as far as targeted antifungal therapy is concerned, the de-escalation process was not implemented according to the guidelines. This leads to breakthrough infections from resistant candida species and financial loss for healthcare systems due to the high cost of echinocandins and liposomal amphotericin-B. Due to all these, adoption of an antifungal stewardship program is a necessity rather than an option.

References

1. Pappas PG, Kauffman CA, Andes DR et al. Clinical Practice Guideline for the Management of Candidiasis: 2016 Update by the Infectious Diseases Society of America. *Clin Infect Dis* 2016; 62(4):409-17.

- The authors declare that there is no conflict of interest
- There was no financial support for the current project