

USE OF DALBAVANCIN IN THE TREATMENT OF PEDIATRIC ACUTE BACTERIAL SKIN AND SKIN STRUCTURE INFECTIONS IN THE SPANISH HOSPITAL SETTING: A COMPARATIVE COST ANALYSIS

Ríos M¹, Carcedo D², Sabaniego J¹, Rosselló I¹

¹Angelini Pharma España, S.L.U (Spain), ²Hygeia Consulting, Madrid (Spain)

BACKGROUNDS AND OBJECTIVES

- In **children**, acute bacterial skin and skin structure infections (**ABSSSI**) are a **significant source of morbidity** a reason for **the increasing number of hospitalizations** [1].
- The need for antibiotics with a spectrum of activity that includes *S. aureus* methicillin resistant (MRSA) to the treatment ABSSSIs is increasing. Recently, **dalbavancin, a long-acting IV lipoglycopeptide antibiotic, indicated for the treatment of ABSSSI in adults, has also been approved for the treatment of children (≥3 months old)** [1].
- Treatment with dalbavancin, due to its **unique posology** and its **short administration duration** (30 min); it maintains therapeutic levels in the blood for over 15 days; it **allows the patient to remove the catheter sooner**, which prevents them from getting infections from wearing it for days; it can **reduce the hospital length of stay (LoS)** of patients with ABSSSI, which prevents them from getting nosocomial infections and consequently; it **reduces the economic burden** [6][7]. **Both adult and pediatric patients could benefit from these advantages.**
- We aimed to assess the economic impact for the Spanish National Health System (NHS) associated with the management of ABSSSI in children treated in hospitals with dalbavancin versus vancomycin and daptomycin (alternatives that have already the pediatric indication).

METHODS

- The posology of the treatments was obtained from the corresponding summaries of product characteristics, accounting for weighted average weight in the pediatric population [2], and 14 days of treatment and hospital LoS were considered [5].
- A cost analysis has been developed from Spanish NHS perspective, comparing the use of long-acting dalbavancin (18-22,5 mg/kg, 30-minute IV infusion) versus vancomycin (40 mg/kg/day, 60-minute IV infusion) and daptomycin (4-6 mg/kg/day, 30-60-minute IV infusion) in ABSSSI for a 3-year time horizon [8]. While vancomycin and daptomycin require a permanent catheter, dalbavancin is administrated by means of peripheral catheters over 30 minutes, reducing the risk of catheter related infections.
- Direct healthcare costs (drug cost and hospitalization costs, € of 2023) were considered. The reduction in hospital LoS was calculated according to various published articles. Pediatric target population was obtained from the Spanish National Hospital Discharge Database (CIE10: L08) [3][4].
- The current market distribution was based on internal data. A potential scenario was explored where the market share of dalbavancin increases by 5%, 10% and 15% for the first, second and third year of the analysis, respectively.

RESULTS

- The total costs considering 272 patients for an average of 14 days of infection, shows that **using dalbavancin as a treatment would be the least expensive alternative for the pediatric population.**
- The therapy that has the lowest drug cost is vancomycin (117,05 €) versus dalbavancin and daptomycin that have a similar drug cost (802,92 € and 816,62, respectively). On the other hand, **dalbavancin has the lowest hospitalization cost due to short length-of-stay** (11,6 LoS versus 14 LoS for vancomycin and daptomycin). That is the reason why dalbavancin is associated with the lowest economic impact to the NHS versus the alternatives [Fig 1].

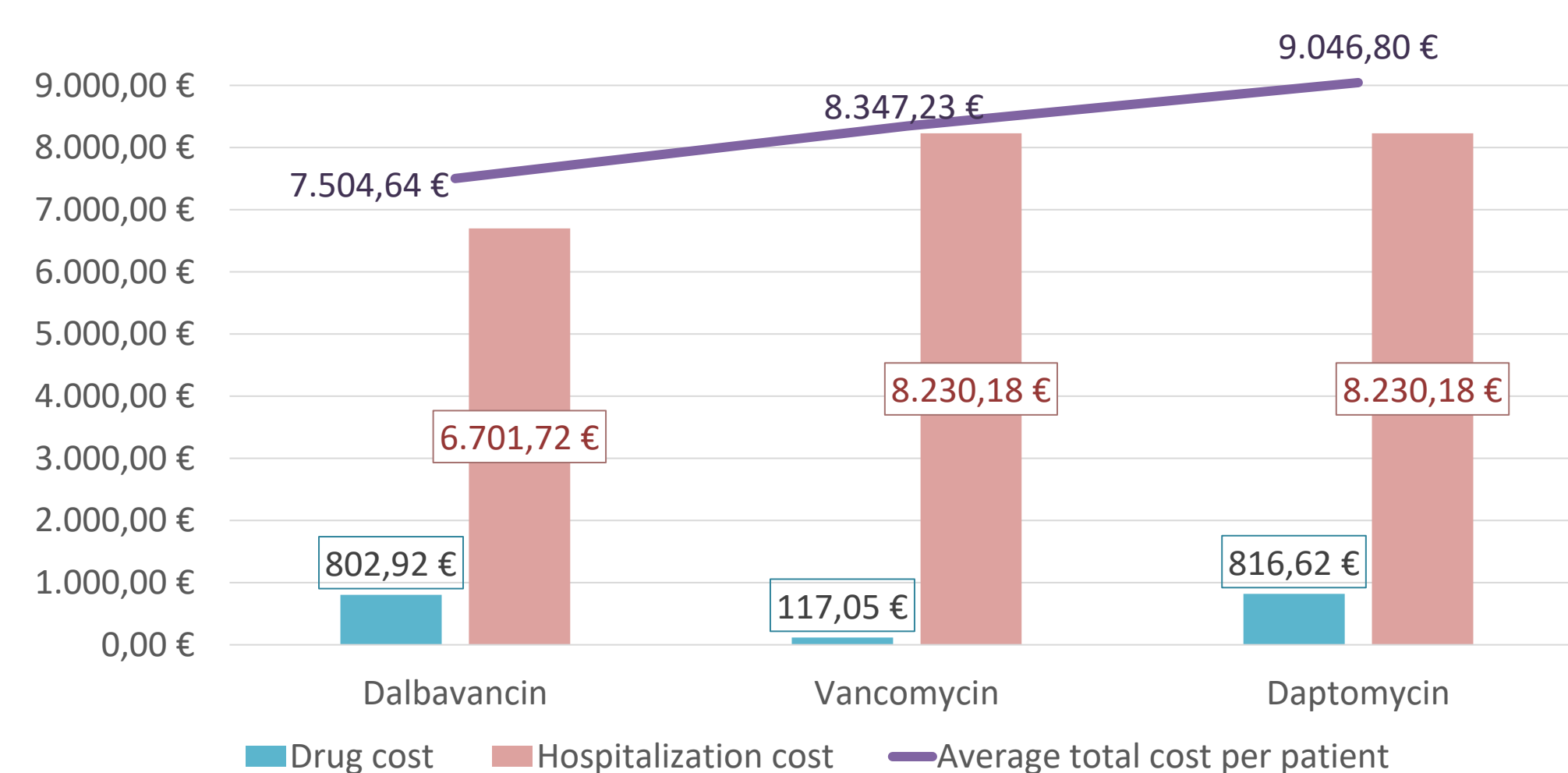


Figure 1: Average total cost per pediatric patient considering 14 days of infection duration

- The increase in dalbavancin's market share would be associated with potential savings due to shorter LoS. So, the higher pharmacological cost of dalbavancin versus vancomycin and daptomycin is fully offset by a lower cost of hospital stay with overall savings of €11,468, €22,938, and €34,407 for years 1 to 3, respectively [Fig 2 and Fig 3].

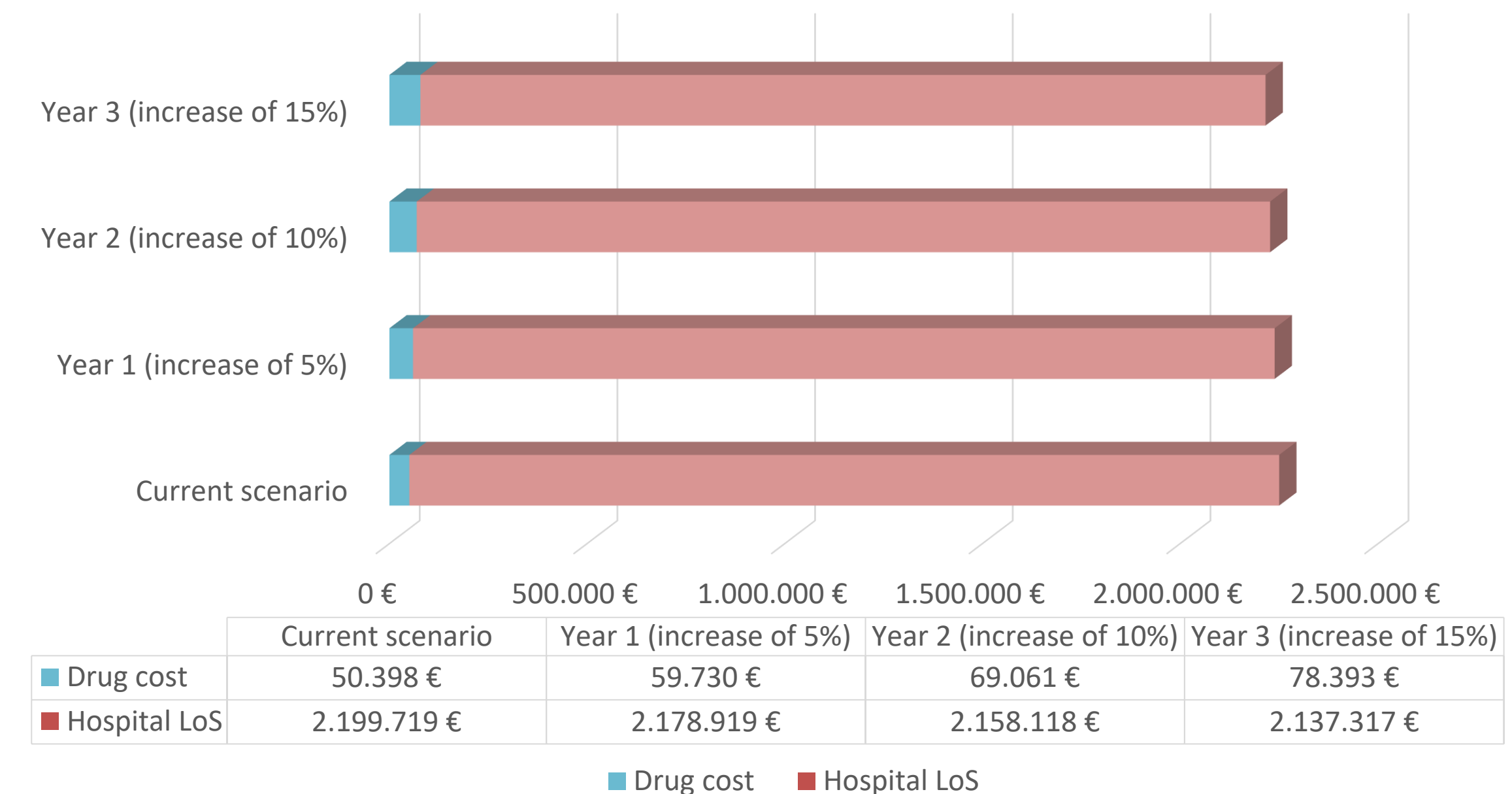


Figure 2: Direct cost (drug cost and hospitalization cost) per pediatric population considering 14 days of infection duration (current scenario and three potential scenarios where the market share of dalbavancin increases)

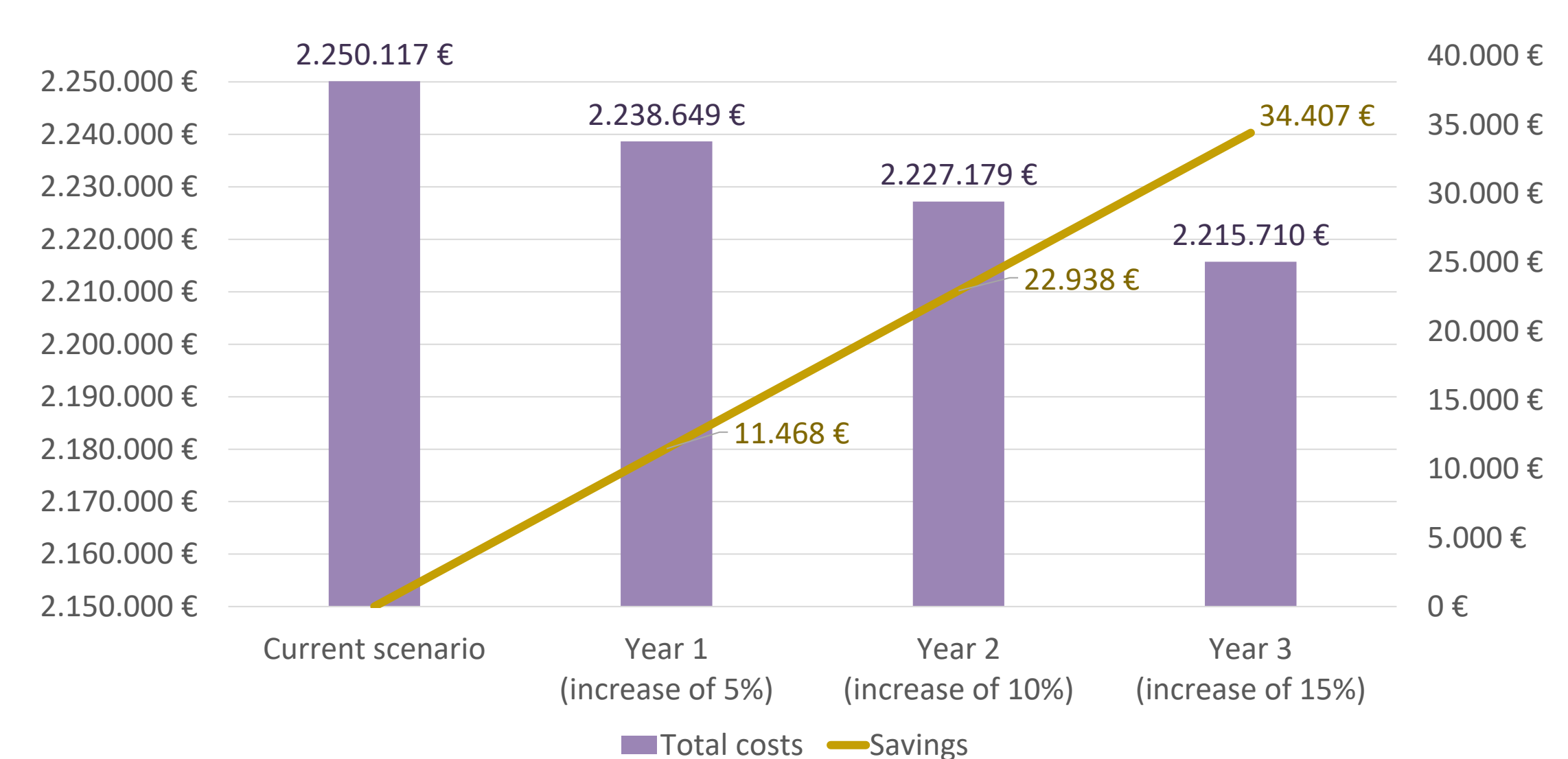


Figure 3: Total costs and savings per pediatric population in the current market distribution and in the following 3 years (increasing by 5% per year). 14 days of infection duration was considered.

CONCLUSIONS

- Dalbavancin is a long-acting lipoglycopeptide with an extended half-life that allows to complete a course of therapy for ABSSSI with single dose of 1500 mg administrated during 30 minutes avoiding the need for indwelling catheters. Despite the higher cost of the drug, the possibility of early discharge can offset its cost and generate savings for the NHS. The results in total cost indicate that dalbavancin is the most cost-efficient alternative versus vancomycin and daptomycin.
- The results of the analysis in dalbavacin's market share, show that the increased use of dalbavancin in the pediatric population is associated with potential savings for the NHS in the treatment of ABSSSIs, due to the reduction in hospital LoS, when compared to other antibiotics such as vancomycin and daptomycin.

REFERENCES

- [1] Giorgobiani, M., Burroughs, M., et al. The Safety and Efficacy of Dalbavancin and Active Comparator in Pediatric Patients with Acute Bacterial Skin and Skin Structure Infections. *The Pediatric Infectious Disease Journal* 42(3):p 199-205, March 2023. DOI: 10.1097/INF.0000000000003798; [2] Bot Plus. Consejo General de Colegios Oficiales de Farmacéuticos (www.botplusweb.farmacaceuticos.com/); [3] Instituto Nacional de Estadística. INE. Población por edad (año a año), Españoles/Extranjeros, Sexo y Año, (<https://www.ine.es/jaxi/Datos.htm?path=/t20/e245/p08/10/&file=01003.px>); [4] Oblikue - Base de conocimiento de costes y precios del sector sanitario (<http://esalud.oblikue.com/>); [5] Marín Cruz I, Carrasco Colom J. Infecciones de piel y partes blandas. *Protoc diagn ter pediatr*. 2023;2:271-283; [6] McCarthy, Matthew W et al. "Dalbavancin Reduces Hospital Stay and Improves Productivity for Patients with Acute Bacterial Skin and Skin Structure Infections: The ENHANCE Trial." *Infectious diseases and therapy* vol. 9,1 (2020): 53-67. doi:10.1007/s40121-019-00275-4; [7] Marcellusi, Andrea et al. "Budget Impact Analysis of Dalbavancin in the Treatment of Acute Bacterial Skin and Skin Structure Infections in Three European Countries." *Clinical drug investigation* vol. 40,4 (2020): 305-318. doi:10.1007/s40261-020-00891-w.