

# Treatment Cost for CDK 4/6 Inhibitors for HR+/HER2- Advanced and Metastatic Breast Cancer Patients in Portugal Based on Real-World Dosing Patterns: Insights From the PORTRAIT Study

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## KEY FINDINGS & CONCLUSIONS

- The median treatment duration was higher for ribociclib (16 months) compared to palbociclib (13 months) and abemaciclib (13 months).
- Ribociclib's average monthly cost estimates were 1.4k€, which is 23% lower than the monthly recommended dose cost. In contrast, palbociclib's and abemaciclib's costs were 2.0k€ and 2.3k€, respectively.
- These insights highlight the cost-effectiveness and treatment duration benefits of ribociclib over other CDK4/6is in the Portuguese healthcare setting and are relevant to the Portuguese public hospitals' financial sustainability.

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## INTRODUCTION

- CDK4/6 inhibitors (CDK4/6is) ribociclib, palbociclib and abemaciclib were reimbursed in Portugal to treat pre/post-menopausal women/men with hormone-receptor positive (HR+)/HER2- locally advanced/metastatic Breast Cancer (LA/mBC) in combination with endocrine therapy<sup>1</sup>.
- The PORTRAIT study is a retrospective longitudinal study of secondary data from drug consumption records that aimed to characterise real-world CDK4/6i usage and to assess dose adjustments and treatment persistence in a Portuguese LA/mBC patients' cohort from 2018 to 2023. This study has previously reported similar dose adjustment patterns for the three CDK4/6is<sup>2</sup>
- Given the insights from this study, an additional analysis was developed to estimate the real-world treatment cost with different CDK4/6is.

## METHODS

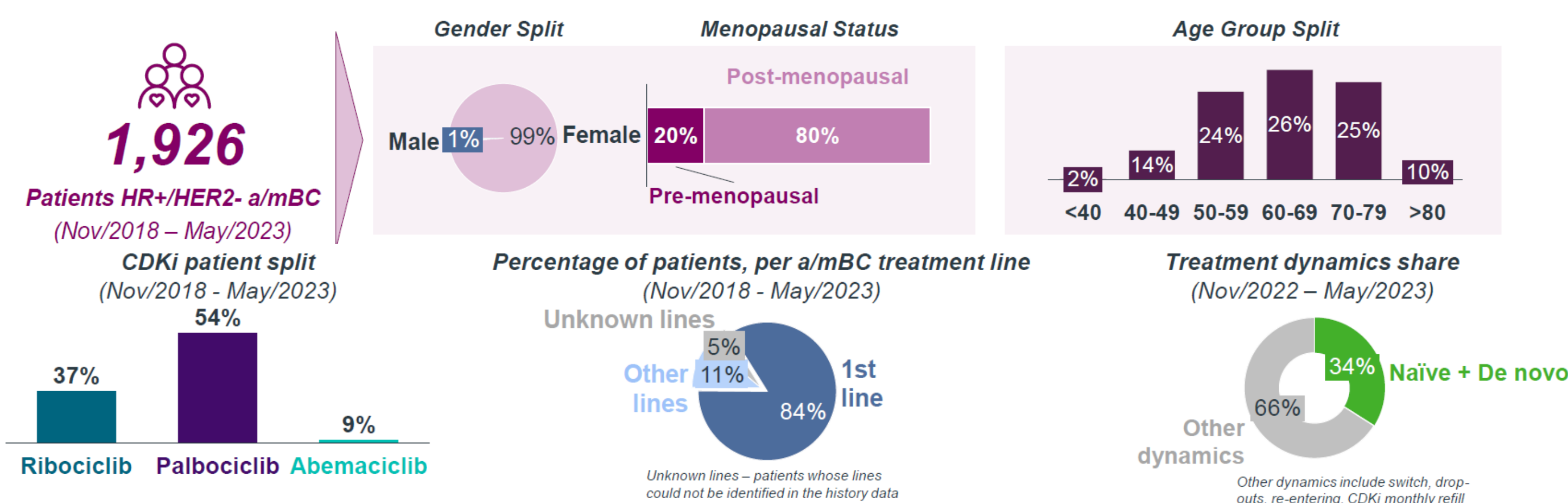
- This retrospective longitudinal multicentre study used monthly hospital drug consumption data from IQVIA, covering pre- and post-menopausal HR+/HER2- LA/mBC patients with at least one month of CDK4/6i treatment from 16 Portuguese public hospitals between November 2018 and May 2023.
- Treatment costs were estimated based on package units and dose adjustments from treatment start to discontinuation, with CDK4/6i package prices sourced from the official Portuguese database in May 2024. A month was assumed to last 28 days to match CDK4/6i dosage.
- The analysis was performed in three stages: consumptions distribution by month in terms of pills (ribociclib) or dispensed packs (palbociclib and abemaciclib); consumptions were "rationalised" based on insights from clinical practice
  - If there was one of two months without consumption, last month dose was considered
  - If there was an increase in dose, prior lowest dose was maintained
  - If there was three or more months with no consumption, treatment was considered discontinued
- Sensitivity analysis considers a reduction of 20% in the listing price to simulate confidential discounts at national and/or local level.

## RESULTS

### Study Population<sup>2</sup>

- A total of 1,926 patients with HR+/HER2- LA/mBC breast cancer were identified and are characterised below (figure 1):

Figure 1. CDK4/6is patient population characterisation

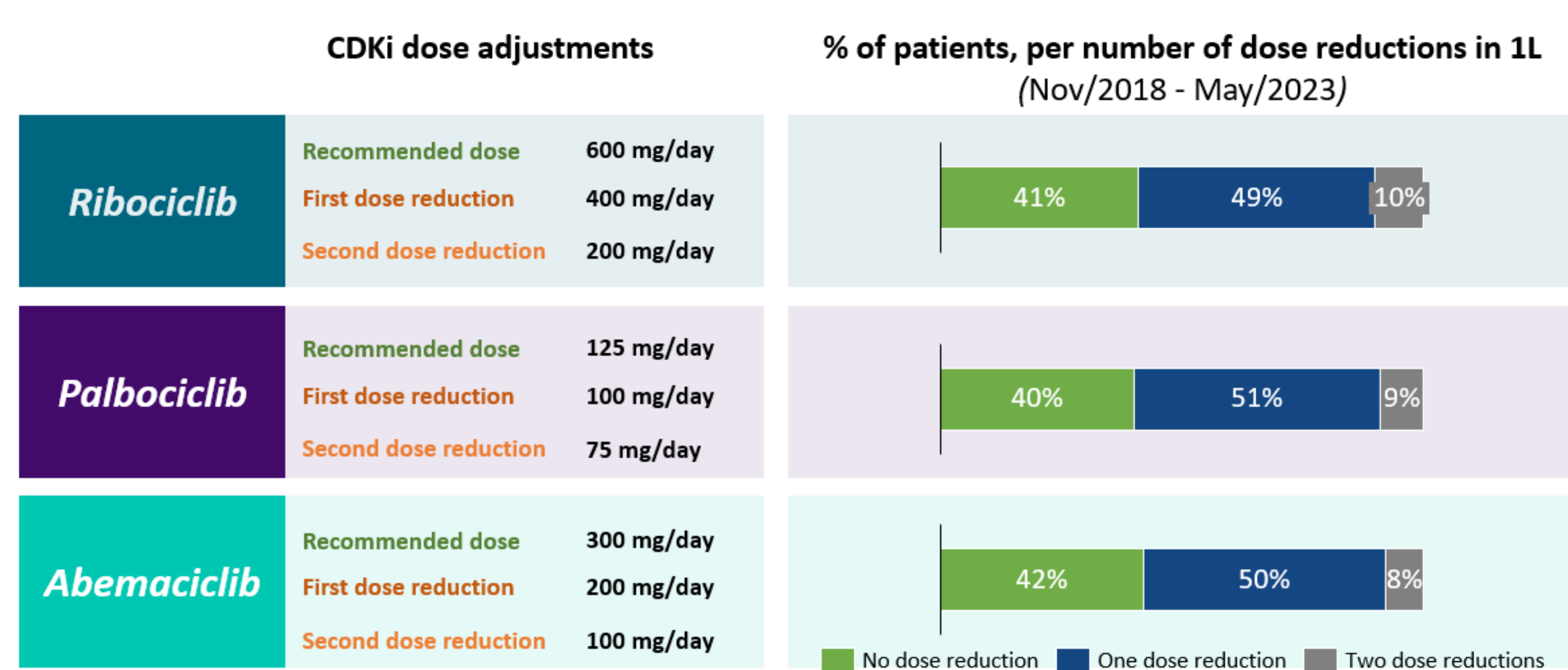


- 992 patients (51.5%) received palbociclib, 726 patients (37.7%) received ribociclib and 187 patients (9.7%) received abemaciclib.
- Baseline characteristics were homogeneous across treatment cohorts

### Recommended Dose and Dose Reductions

- Dose reduction patterns were comparable between the three CDK4/6is, with approximately 60% of patients requiring one or two dose reductions until treatment discontinuation (figure 2).
- Relative dose intensity (average monthly dose divided by recommended dose) was estimated at approximately 80% for all CDK4/6is

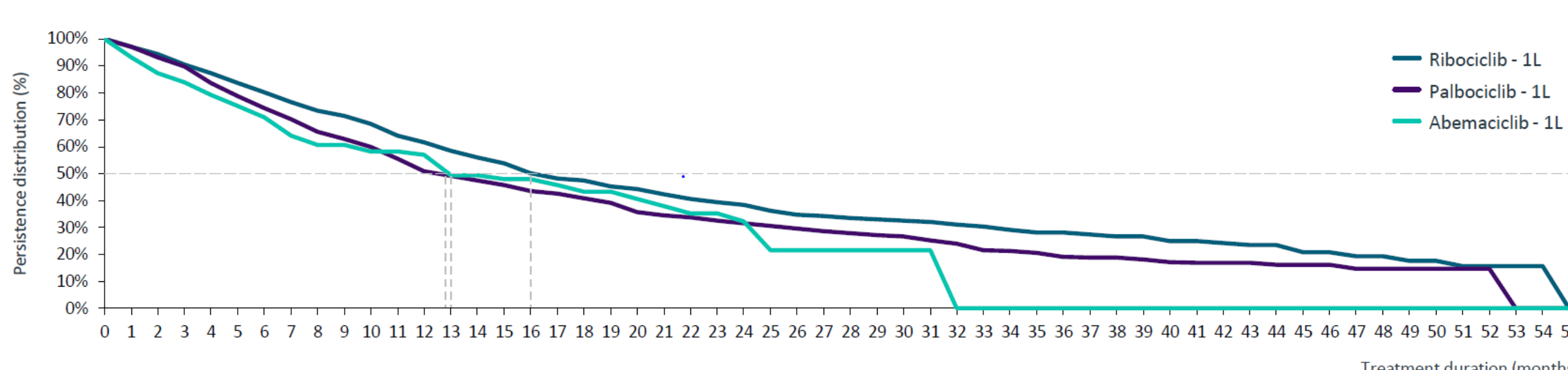
Figure 2. Average Weight Dose Level in CKD4/6i patients



### Treatment Duration

- The median treatment duration was higher for ribociclib (16, 16-17 months) as compared with palbociclib (13, 12-13 months) and abemaciclib (13, 12-14 months) (figure 3).

Figure 3. Overall Treatment Duration by CDK4/6i



### Treatment Costs

#### CDK4/6is List Prices & Associated Average Monthly Costs

- Ribociclib is the only CDK4/6i with linear pricing as opposed to flat pricing from both palbociclib and abemaciclib (table 1).
- Average treatment costs consider the average of patients whose dose was reduced, as observed in figure 2.
- As a result, for ribociclib, it was estimated an average monthly cost 23% lower (1.4k€) than the cost of the recommended dose (1.9k€), while the remaining CDK4/6is did not report cost reductions associated with dose reductions (2.0k€ and 2.3k€ per month for palbociclib and abemaciclib) (table 1).

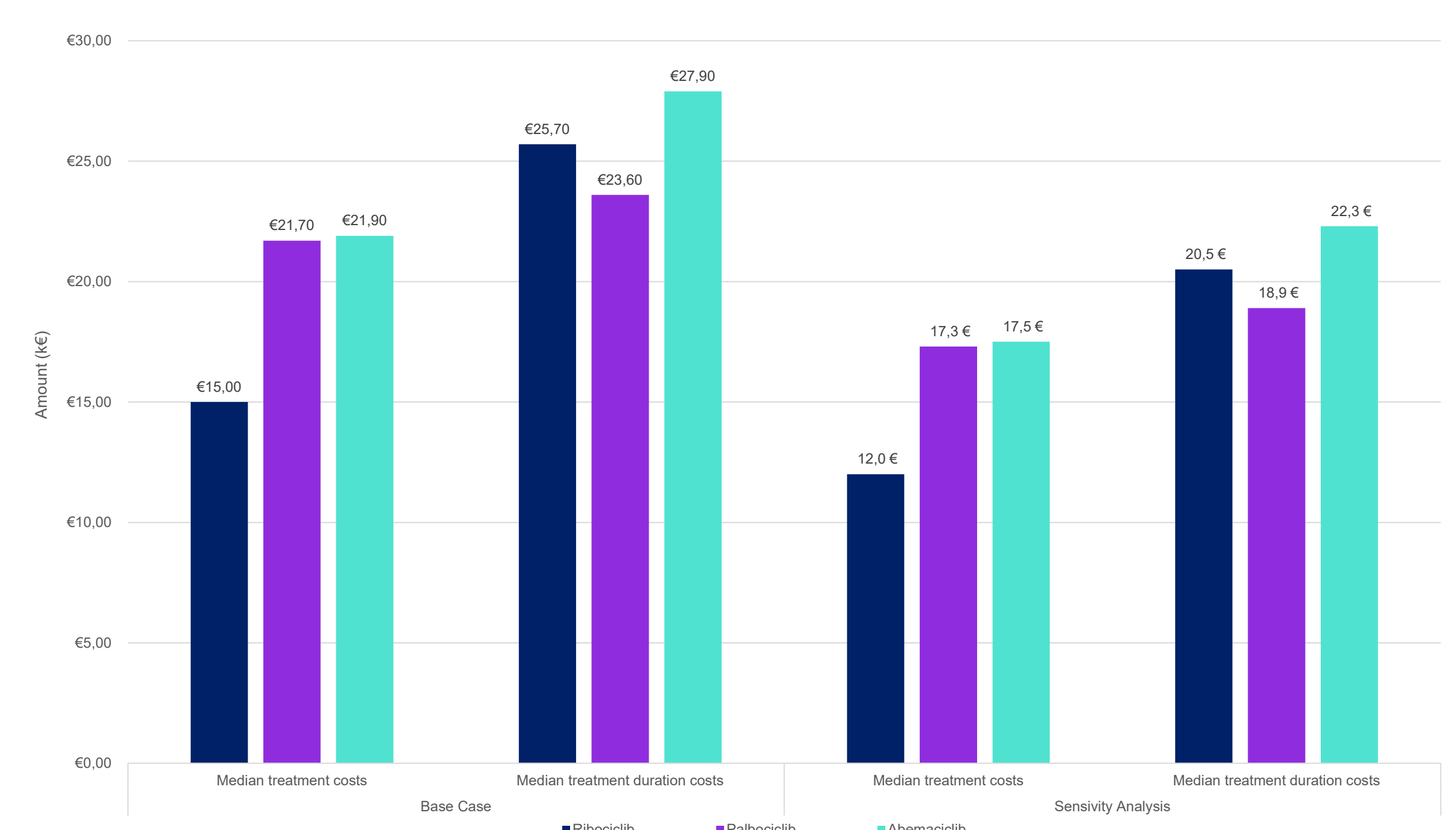
	Recommended dose	1st dose reduction	2nd dose reduction	Average monthly Cost
Ribociclib	1,871.10€	1,247.40€	623.70€	1,440.75€
Palbociclib	1,969.38€	1,969.38€	1,969.38€	1,969.38€
Abemaciclib	2,327.40€	2,327.40€	2,327.40€	2,327.40€

Table 1. CDK4/6is List prices and average monthly cost

#### Median Treatment costs

- Median treatment costs reflect the costs of the median treatment duration.
- Although, Ribociclib reported the highest median treatment duration (16 vs 13 months), it also reported the lower median treatment cost estimates than palbociclib and abemaciclib (15k€ vs 21.7k€ and 21.9k€ respectively) (figure 4).

Figure 4. Median treatment costs per CDK4/6i (base case and sensitivity analysis)



### Limitations

- The analysis sample is limited to 16 Portuguese NHS hospitals, excluding private hospitals.
- Data reported by hospitals does not include diagnosis and therefore patients are classified as LA/mBC patients based exclusively on their consumption records and selection rules.
- Treatment lines are identified by the molecules consumed and their order, following clinical practice guidelines and validated by clinical experts. Some treatment lines are classified as 'Unknown' due to consumptions starting before the date interval considered.
- Treatment Persistence and Time To Next Treatment analysis considers the number of months with CDK4/6i consumption reported by the hospital without knowing the start day, leading to minor differences can be seen when comparing with real-world since.
- Bias may occur due to the disproportionality of CDK4/6is usage, skewed by higher palbociclib usage.
- CDK4/6is wastage cannot be assessed, leading to potential cost estimation errors, with possible differences between ribociclib and CDK4/6is due to dose reduction.

### References

- Infarmed - National Authority of Medicines and Health Products, IP. Retrieved October 16, 2024: <https://www.infarmed.pt/web/infarmed/relatorios-de-avaliacao-de-financiamento-publico>;
- Pulido C et al. Treatment Landscape and Real-World Dosing Patterns with CDK 4/6 Inhibitors for HR+/HER2- Advanced/metastatic Breast Cancer in Portugal – PORTRAIT Study. Poster presented at the XX National Oncology Congress 2023 held between 22-24 November 2023 in Lisbon, Portugal.

### Acknowledgements

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### Disclosures

Daniel Brás, João Esteves, Patrícia Rosa, Ricardo Lopes are Novartis Farma's employees.