

CLINICAL AND ECONOMIC CONSEQUENCES OF EPILEPSY TREATMENT ACROSS INCREMENTAL TREATMENT LINE IN SPAIN: A REAL-LIFE DATABASE ANALYSIS

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BACKGROUND AND OBJECTIVES

- **Epilepsy** is one of the most common **chronic brain disease** worldwide and is **characterized by the spontaneous occurrence of seizures**.
- **Drug-resistant epilepsy (DRE)** is defined by the ILAE as **failure of two well-tolerated, appropriately chosen and used antiepileptic drugs to achieve seizure freedom** [4]. Studies suggest that **30-40% of patients have DRE** [5]. The cost to treat an epilepsy patient depends on the duration, severity, response to treatment and healthcare setting [1].
- **Epilepsy carries high social and economic burden**, but there is limited evidence on the potential growth of this burden as patients advance across different treatment lines [2].
- The **aim of this study** was to **provide real world evidence on the characteristics, comorbidities, and treatments of patients with epilepsy in Spain**, as well as health resource utilization (HRU) across incremental epilepsy treatment lines.

METHODS

- A **six-year retrospective study based on real life data** from the BIG-PAC® database was performed, including over 1,9 million Spanish individuals, in patients newly diagnosed with epilepsy between January 2016 and December 2021. The database includes information on number of medical visits, prescriptions, hospitalizations, sick leaves and defunctions [3].
- **Patients with epilepsy** meeting the inclusion criteria (N= 5006) **were grouped in 4 cohorts according to the number of antiseizure medications** they had been treated with during the recruitment period (1, 2, 3 and ≥ 4 antiepileptic drugs).
- Study endpoints included demographic characteristics, comorbidities, treatments used and healthcare resource use and costs.
- A detailed analysis on epilepsy and concomitant medication, HRU and associated costs was performed.

RESULTS

- Patients were similarly distributed regarding sex and age. A **significant difference in the Charlson index mean across treatment lines** was observed (cohort 4 had a higher percentage of patients with a high Charlson index score). **Depressive syndrome was one of the most frequent epilepsy comorbidities**, especially among patients in the 4th+ treatment line (cohort 4) [1].
- There was a **significant difference between cohorts in the distribution of the antiepileptic drugs prescribed**. In **cohort 1, 100% of patients used drugs in monotherapy**, but less than 20% and 10% of patients received monotherapy (in cohort 2 and 3, respectively). In **cohort 4, 100% of patients used drugs in polytherapy** with several antiepileptic drugs [Fig 1].

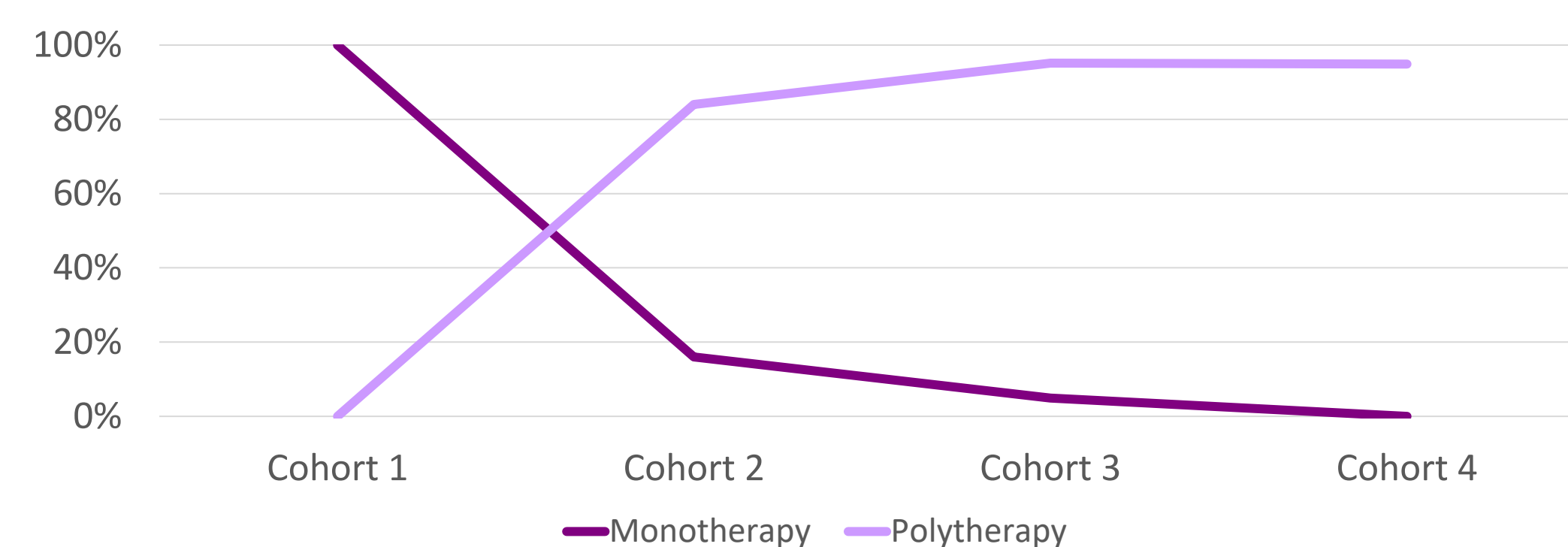


Figure 1: Distribution of antiepileptic drugs prescribed by cohorts

- We observed **significant and growing differences in health resource utilization (HRU)** across treatment lines, including an **increase in number hospitalized patients, in duration of hospital admissions and sick leaves in later treatment lines** [Fig 2].

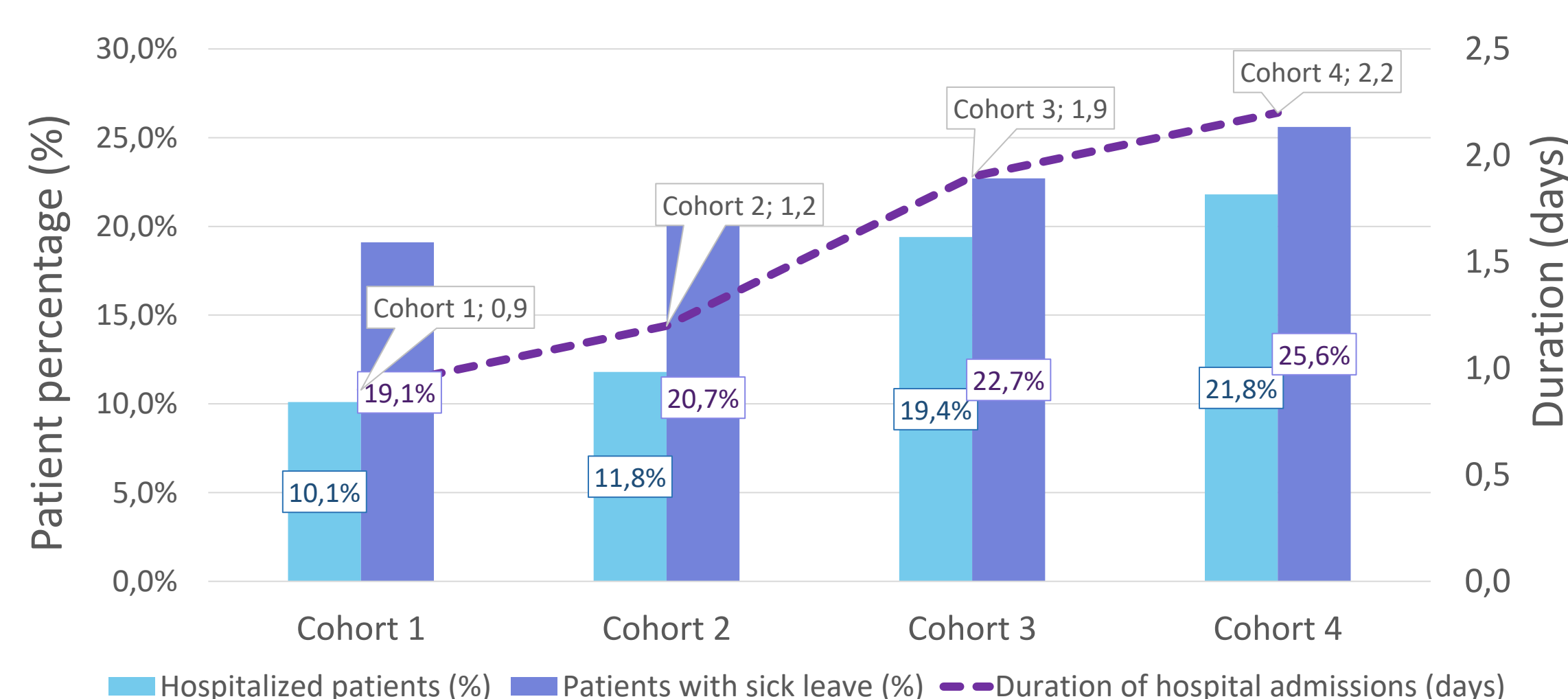


Figure 2: Differences in health resource utilization across treatment lines (cohort 1, cohort 2, cohort 3 and cohort 4)

- The results show that the highest healthcare costs were due to epilepsy medication, followed by days at hospital and specialized visits [Fig 3].

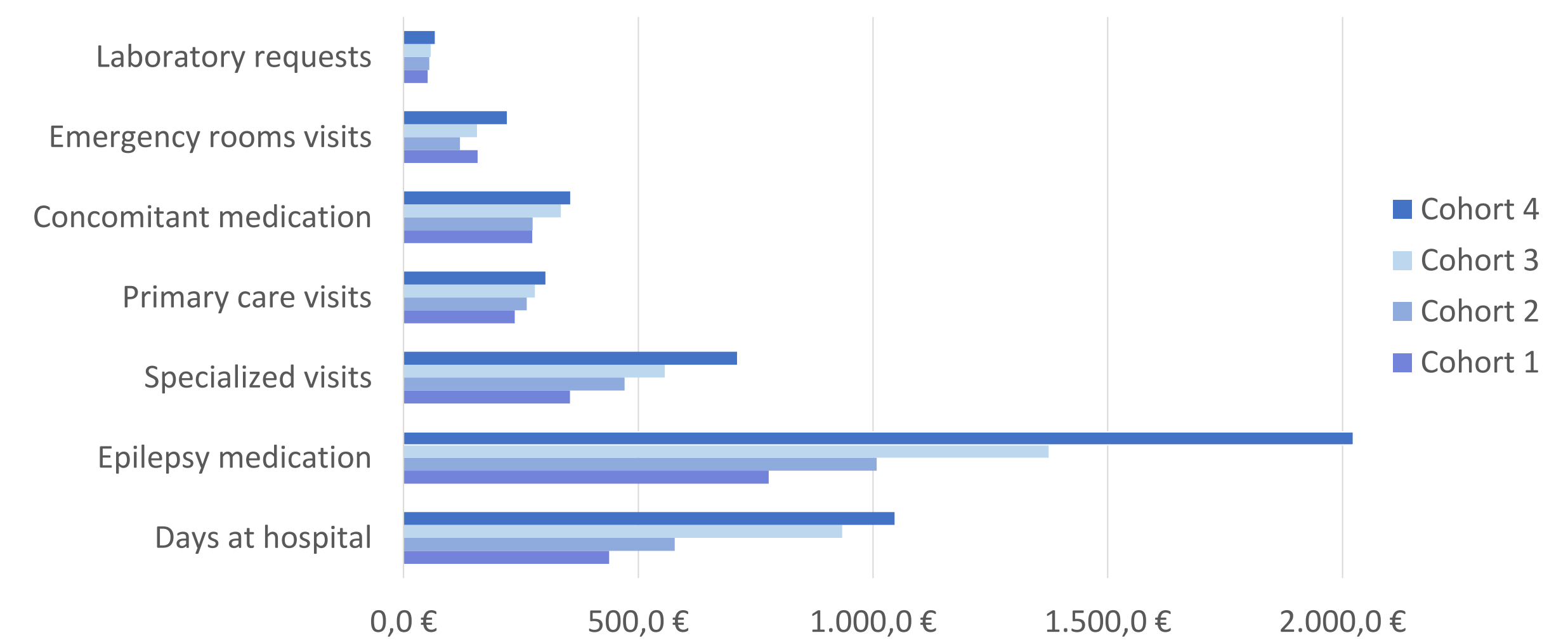


Figure 3: Differences in annualized resource use according to cohorts (cohort 1, cohort 2, cohort 3 and cohort 4)

- **Evaluation of costs** (adjusted by age, sex and Charlson index) **confirmed the increase in direct and total costs across treatment lines**, with an average difference of 2.760€ total costs/year between cohort 1 and 4 (p<0,001).
- **Results confirm that poor epilepsy control entails substantial costs**. The incremental costs between the 1st line and the 2nd line was lower than between the 2nd and 3rd lines, which in turn was lower than between the 3rd and 4th lines (543€, 978€ and, 1.240€ respectively) [Fig 4].

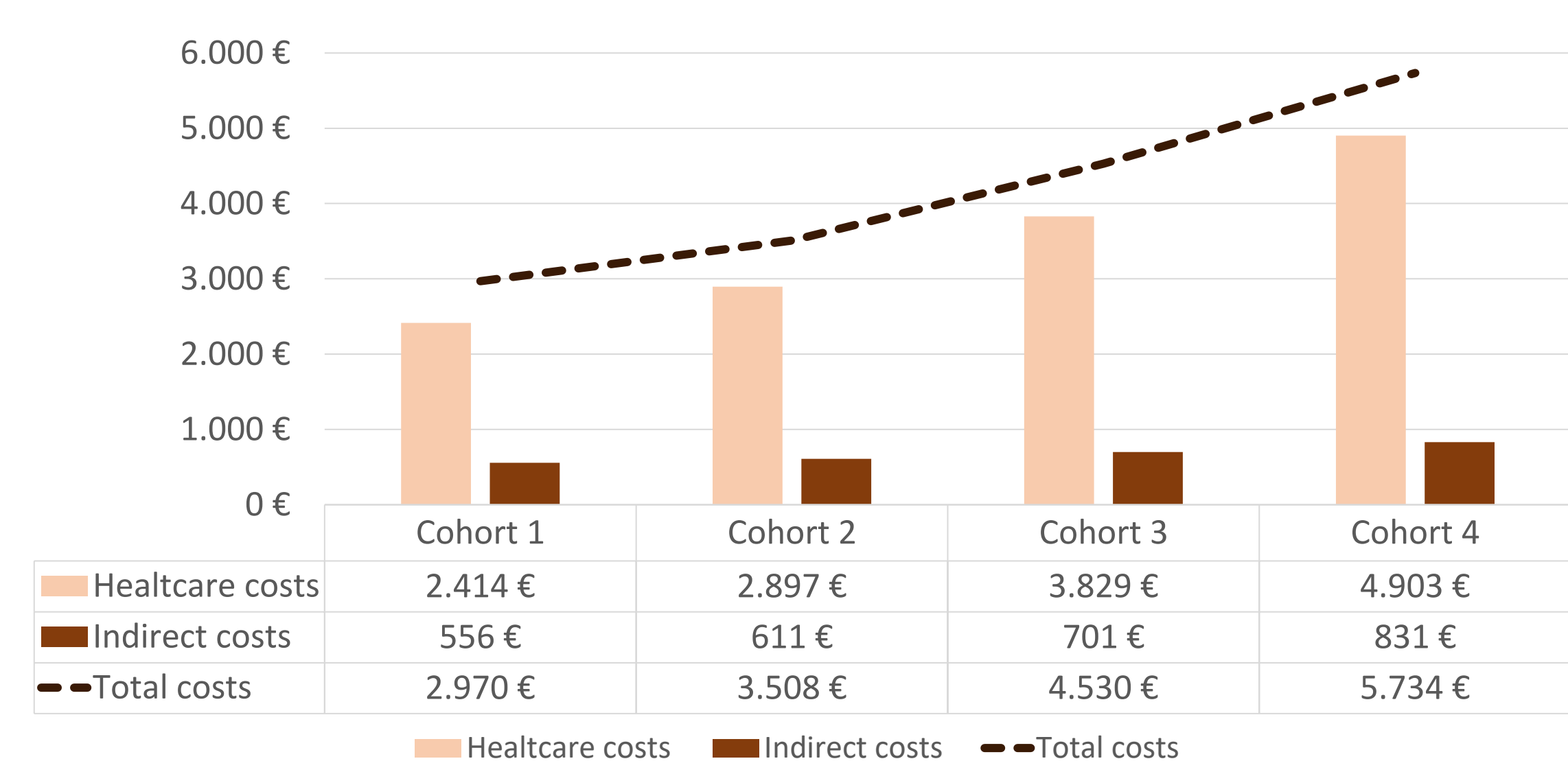


Figure 4: Annualized healthcare and indirect costs according to cohorts per patient and year

CONCLUSIONS

- Our data reveals a progressive increase in HRU and associated costs across epilepsy treatment lines in Spain. At later lines, the cost difference between cohorts is larger. Therefore, a controlled patient in 2nd line will be associated with greater lifetime savings than a controlled patient in 3rd or 4th line.
- Patients accumulate up to 4 antiepileptic concomitant medications in later lines, generating substantial cost and increased use of health resources.

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