

Long Term Costs Assessment of Oral Therapies for Patients With Relapsing Multiple Sclerosis Based on the Evidence From a Large Real-World Study – Application to a Portuguese National Academic Hospital Center

Lucio Rodrigues C¹, **Silverio N²**, Tundia N³

¹CHULC - Hospital dos Capuchos, Lisbon, Portugal, ²Merck S.A., Lisbon, Portugal; an affiliate of Merck KGaA, Darmstadt, Germany, ³EMD Serono Research & Development Institute, Inc., Billerica, MA, USA



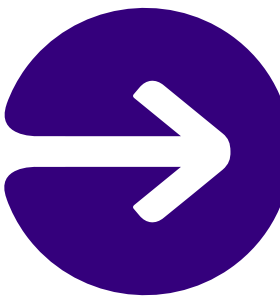
GET POSTER PDF
Copies of this poster obtained through QR (Quick Response) code are for personal use only and may not be reproduced without written permission of the authors



CONCLUSIONS

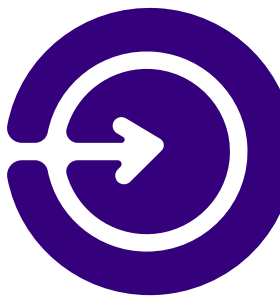


While FTY, DMF and TER may have lower costs in the short-term, due to high persistency with CladT over a longer term of 4 years, CladT has the lowest accrued treatment costs, which may result in overall cost savings at both the NHS and hospital pharmacy levels.



INTRODUCTION

- In Portugal, the estimated incidence of multiple sclerosis (MS) is around 4,48 cases per 100.000, or 450 new cases per year¹, with an estimated prevalence of 56,2 cases per 100.000, for a total of 6.000 cases.²
- Currently, four oral disease-modifying therapies (DMTs) are funded by authorities for the treatment of MS within the Portuguese National Health System (SNS), namely, cladribine tablets (CladT), fingolimod (FTY), teriflunomide (TER) or dimethyl fumarate (DMF).³
- Since cost is currently a major concern to Portuguese payers, it is of the upmost importance to understand the cost profile over time of these therapies for the treatment of relapsing MS (RMS).
- Generating Learnings In MultiPle SclErosis (GLIMPSE)⁴, a real-world study evaluating treatment effectiveness of these oral DMTs in RMS patients in the MSBase registry allows for a simulation of these costs in a Portuguese setting.



OBJECTIVE

To determine 4-year total drug costs for patients with RMS starting treatment on oral DMTs, CladT, FTY, TER or DMF, based on the persistency data from the large real-world study GLIMPSE



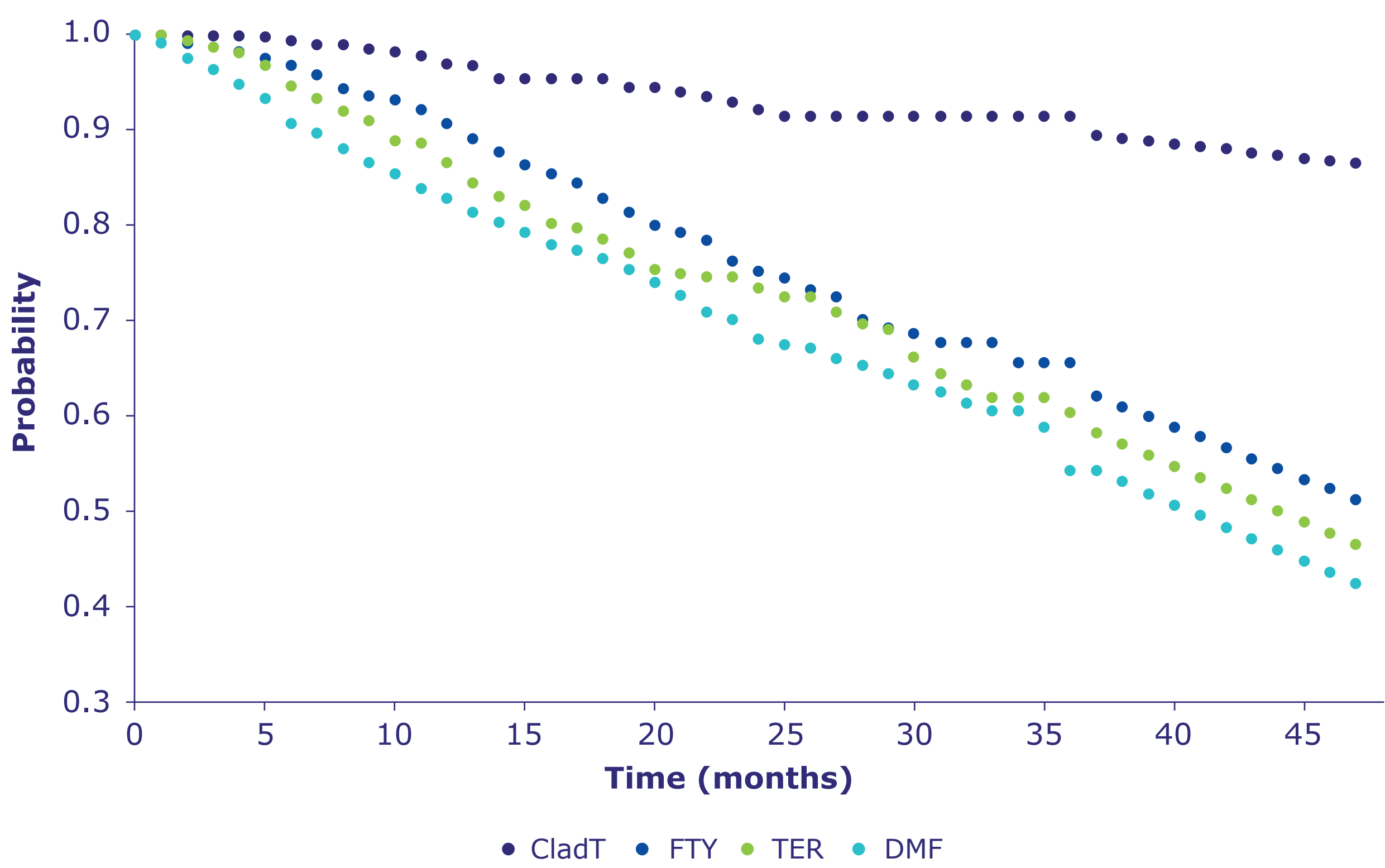
METHODS

- An Excel model was designed to calculate total costs at each time point and accrued drug cost over four years for each oral treatment, from the perspective of a large hospital in Lisbon. Only hospital drug acquisition costs were considered based on the perspective of the hospital's pharmaceutical services. Costs for each therapy can be found in **Table 1**.
- Posology for all DMTs was as specified in each Summary of Product Characteristics (SPC) approved by the European Union, and in the case of CladT an average of 12,76 tablets per patient per year was used for the calculations, in line with the RWE of a specific Portuguese hospital.
- Total treatment costs at each month were derived by adding the cost of each oral DMT in patients persisting on it and the cost of ocrelizumab, the most common second-line DMT used, in those patients for which switch had already occurred.
- Probability of patients persisting on each oral DMT was derived from time-to-switch data from the GLIMPSE real-world study (see **Figure 1**). Persistence in year four was assumed from linear regression of available 3-year data since regression of available data yielded acceptable R² values.

Table 1. DMT Treatment Costs (per SPC)

DMT	Cost	Total
Fingolimod	1 234,85 €	per month
Dimethyl fumarate	798,68 €	per month
Teriflunomide	672,06 €	per month
Cladribine tablets	9 589,78 €	Only month 0, 1, 12 and 13
Ocrelizumab	10 039,96 €	Only once every 6 months

Figure 1. Probability of Staying on Treatment



RESULTS

Treatment costs of DMTs:

- Overall, the accrued treatment cost of TER remained lower than DMF which remained lower than FTY. The treatment cost accrued for CladT increases at slower rate over time and is higher than all oral DMTs until month 28. But it becomes lower than all DMTs, FTY at month 29, DMF at month 39 and TER at month 44.
- Cost accrual profiles for all oral DMTs can be seen in **Figure 2**.
- Total 4-year treatment costs are 42 948 € for CladT, 44 911€ for TER, 50 815 € for DMF and 64 154 € for FTY.
- Over a 4-year time horizon starting therapy with CladT would result in average savings per patient treated of 21 206 € vs FTY, 7 867 € vs DMF and 1 963 € vs TER.

Sensitivity Analysis

- Change to patient weight has impact on overall CladT cost. Assuming an average of 12,25 tablets per year will result in accrued 4-year costs of 41 444 € whereas it would require an average posology of 13,43 tablets per year for CladT to have accrued costs higher than TER. Equivalent values for DMF and FTY are 15,42 and 19,93 tablets.
- Changes to price of CladT were also evaluated and any price drop will further anticipate the time to accrual break-even points vs the other oral DMTs. As an example, a price drop of 25% (from current 1 503,16 € per 10 mg to 1 127,37 €) would result in a 4-year accrued cost of 33 507 € for CladT, with it becoming lower than FTY by month 22, DMF by month 30 and TER by month 35 (see **Figure 2**).

Figure 2. Cost Profile of 4 Different MS Treatment Options Over A 4-year Time Frame

