

Anti-VEGF Cost Calculator in Neovascular Age-related Macular Degeneration and Diabetic Macular Edema in Portugal



ISPOR 2022
ID # EE556

Valente C¹, Graça A², Barreiras I¹, Monteiro M¹, André S¹

OBJECTIVE

To develop a budget analysis tool for anti-vascular endothelial growth factor (anti-VEGF) therapy considering the two main indications approved and reimbursed in Portugal: neovascular age-related macular degeneration (nAMD) and diabetic macular edema (DME). This calculator intends to simulate and compare the costs for each eye treated with the approved and reimbursed treatment options available for these indications and depending on the different regimens used – fixed, treat and extend (T&E), or pro re nata (PRN).

INTRODUCTION

- In Portugal, intravitreal aflibercept (IVT-AFL) and ranibizumab are approved and reimbursed for the treatment of nAMD and DME and brolucizumab is reimbursed for only nAMD.
- There are different costs associated with each treatment regarding number of injections and monitoring costs.
- This budget analysis tool intends to simulate and compare the costs for each eye treated with these treatment options for nAMD and DME depending on the different regimens and drugs used.

METHODS

- For this analysis, treatment costs and monitoring costs were considered. The treatment costs included the drug costs and the administration costs; for the monitoring costs, all medical exams usually performed during a medical visit were included and validated by national healthcare professionals.
- Data from the Portuguese Public Health Procurement Catalog and Portaria no. 254/2018 were used to address the costs (Tables 1, 2, and 3).^{1,2} The number of injections was based on data from published clinical studies and the monitoring visits on clinical practice (Tables 4 and 5).³⁻¹⁷

Table 1 – Treatment and administration costs of anti-VEGF therapies in Portugal¹

Medication	Listed price, €	Administration Costs, €
IVT-AFL	567.26	50.20
Ranibizumab	532.38	50.20
Brolucizumab	532.38	50.20

Table 2 – Monitoring costs of nAMD²

Resource	%/Visit	Cost, €
Ophthalmology appointment	100	63.90
Optical coherence tomography	100	79.70
Fundoscopy/Ophthalmoscopy	100	16.30
VA evaluation – ETDRS tables	100	14.70
Fluorescence angiography	20	94.10
Angiography with indocyanine green	7	169.60
Monitoring visit total cost	-	205.29

VA – Visual Acuity; ETDRS – Early Treatment Diabetic Retinopathy Study

Table 3 – Monitoring costs of DME²

Resource	%/Visit	Cost, €
Ophthalmology appointment	100	31.00
Optical coherence tomography	100	79.70
Fundoscopy/Ophthalmoscopy	100	16.30
AV evaluation – ETDRS tables	100	14.70
Fluorescence angiography	-	94.10
1 st monitoring visit	-	235.80
Remaining visits	-	141.70

RESULTS

Table 4 - No. of injections and monitoring visits for anti-VEGF therapy in nAMD³⁻¹²

	Regimen	IVT-AFL ^{3,6,7,9,10}		Ranibizumab ^{4,6,8,11}		Brolucizumab ^{5,11,*}	
		Year 1	Year 2 and beyond	Year 1	Year 2 and beyond	Year 1	Year 2 and beyond
No. of injections	Fixed	7.5	6.0	12.3	12.0	7.0	4.3
	T&E	7.1	4.9	10.1	8.5	NA	NA
	PRN	5.2	2.5	5.6	4.3	NA	NA
No. of monitoring visits	Fixed	3.0	3.0	3.0	3.0	6.0	4.3
	T&E	6.1	4.9	9.1	8.5	NA	NA
	PRN	12.0	12.0	12.0	12.0	NA	NA

*HAWK and HARRIER regimen considered approximate to the fixed regimen by the authors; NA: not available

Considering the listed prices of the anti-VEGF drugs, the analysis shows that, for nAMD, IVT-AFL has a total cost of approximately 50–60% lower than ranibizumab for the fixed and T&E regimens, which means an average annual savings of €2650 per eye treated with IVT-AFL. For brolucizumab in nAMD with the fixed regimen, the average annual costs are similar in comparison with IVT-AFL (Figure 1). Data are not yet available for brolucizumab in the T&E and PRN regimens.

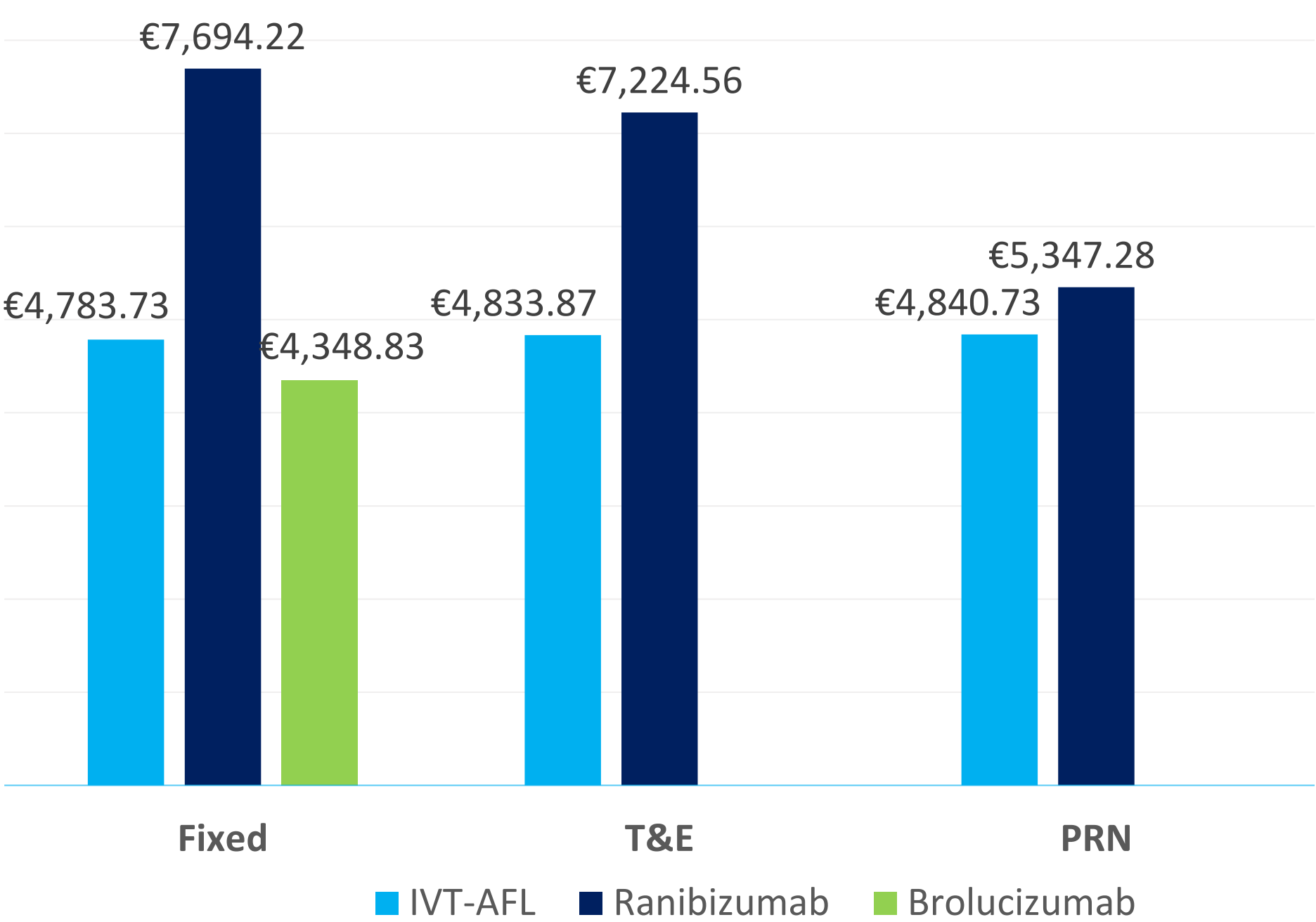


Figure 1 – Average annual cost of anti-VEGF therapy in nAMD

Table 5 - No. of injections and monitoring visits for anti-VEGF therapy in DME^{3,4,13-17}

	Regimen	IVT-AFL ^{3,13,15,17}		Ranibizumab ^{4,14,16,17}	
		Year 1	Year 2 and beyond	Year 1	Year 2 and beyond
No. of injections	Fixed	8.5	5.0	12.0	12.0
	T&E	8.5	3.9	7.0	5.6
	PRN	9.0	5.0	10.0	6.0
No. of monitoring visits	Fixed	3.0	3.0	3.0	3.0
	T&E	5.5	3.9	4.0	5.6
	PRN	12.0	12.0	12.0	12.0

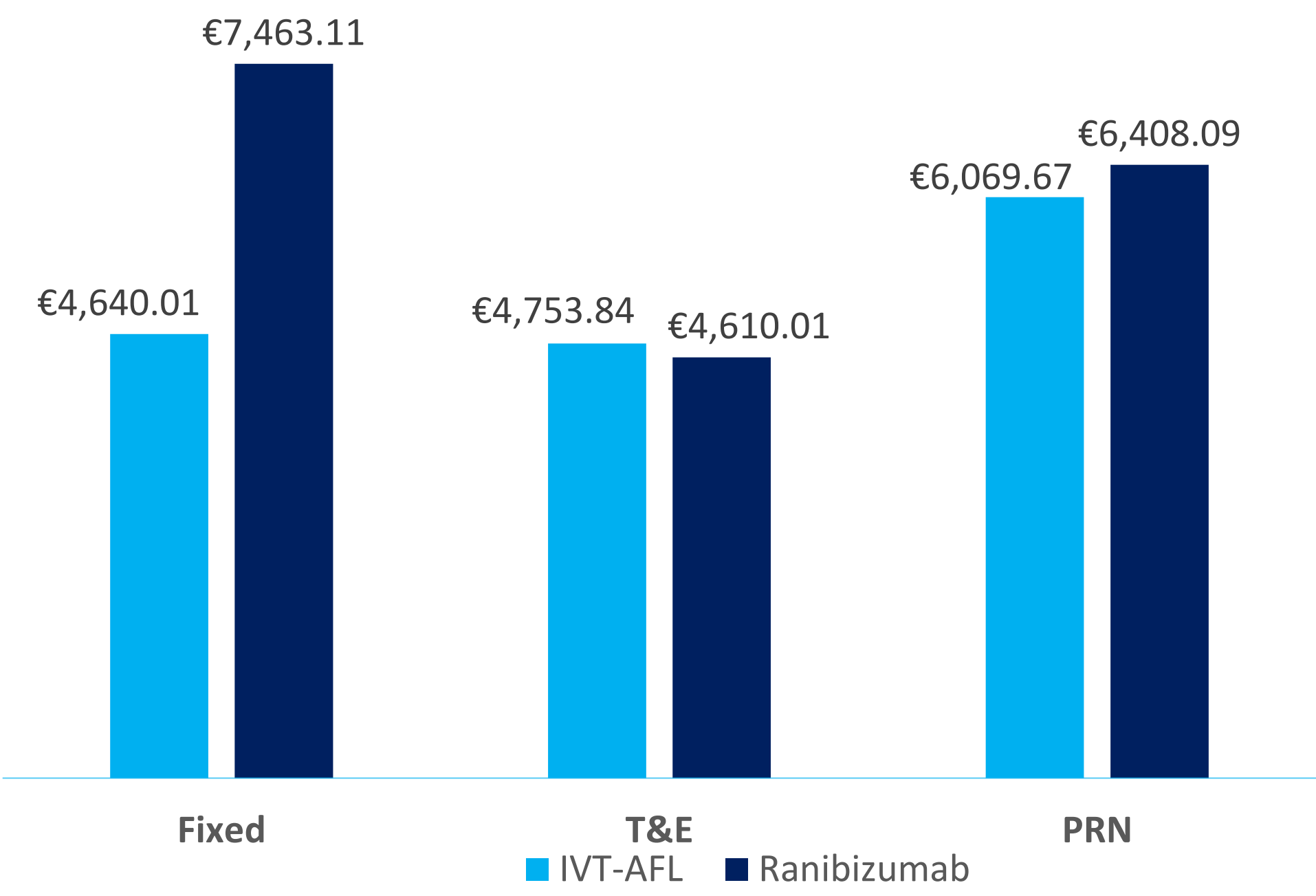


Figure 2 – Average annual cost of anti-VEGF therapy in DME

Regarding DME, IVT-AFL has lower costs than ranibizumab in the fixed and PRN regimens, allowing annual savings of approximately €2800 per eye treated with the fixed regimen (Figure 2).

CONCLUSIONS

This tool shows that the potential treatment costs with IVT-AFL are lower than ranibizumab in nAMD and DME, which translates into important savings for hospitals. IVT-AFL and brolucizumab have fewer differences in terms of costs in nAMD, where the clinical evidence on efficacy and safety should also be a driver for anti-VEGF selection.

Disclosure

This work was developed by Bayer.

¹Bayer Portugal Lda, Carnaxide, Portugal; ²Alexandra Graça was formerly an employee of Bayer Portugal Lda, now employed at Novartis Portugal.

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