

Budget Impact Analysis of Dupilumab 200 Mg for Treatment of Adolescent and Adult With Severe Asthma in Algerian Setting

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BACKGROUND

- Asthma is a serious public health problem around the world, due to its socio-economic and quality of life impacts. It reaches all age groups, and its frequency is clearly increasing.

- Asthma-related morbidity is steadily increasing, and the economic burden of the disease is significant.

OBJECTIVE

The aim of this study is to estimate the impact of Dupilumab 200 mg introduction with existing treatment regimens (Biologics) for patients with severe uncontrolled asthma in Algeria, over a time horizon of 5 years, from Algerian health care system's perspective.

METHODS

- The budget impact analysis was designed with a 5-years' time horizon for adults and adolescents (12 years and older) with severe uncontrolled asthma.

- Comparing two scenarios (market with and without dupilumab) using the epidemiology data references from National Office of Statistics, literature review and KoL* inputs.

- The costs included are treatment costs and costs of exacerbation which are covered by the health authorities (CPH** and hospitals), representing direct costs related to the management of severe asthma.

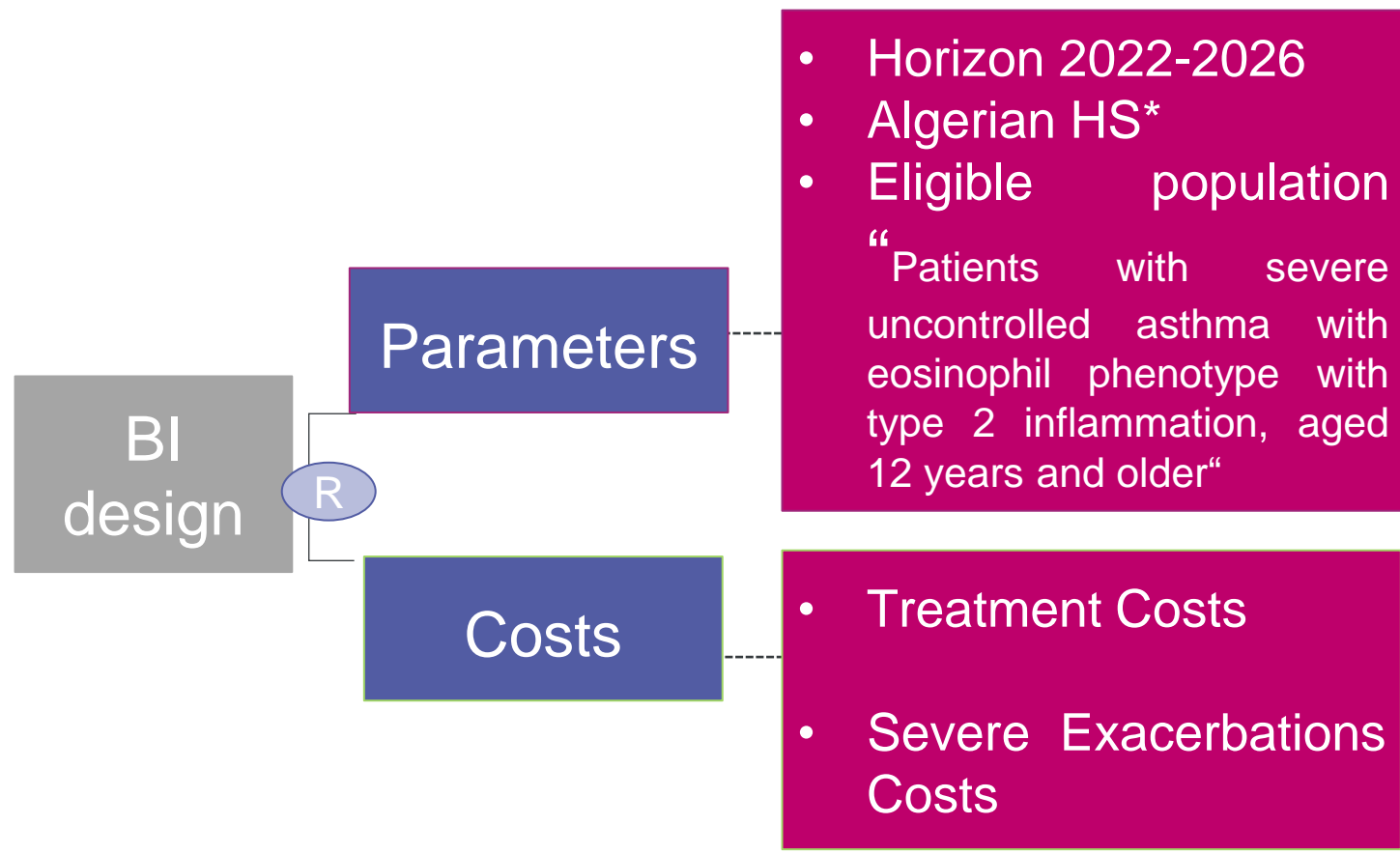
- Omalizumab*** dosage varies according to patient's body weight and serum IgE level. two assumptions were considered in the model :
 - 450 mg Q4W
 - 450 mg Q2W

- All costs were reported in Euro with an Exchange rate of 1 Euro = 160 DZD.

- Deterministic sensitivity analysis was carried out on all relevant costs and parameters included in the budget impact assessment.

- Key opinion Leaders **Central Pharmacy of Hospitals
- Omalizumab 150 mg is the only biological treatment for severe Asthma available in Algeria ***

Figure 1: Budget Impact design



*Healthcare system



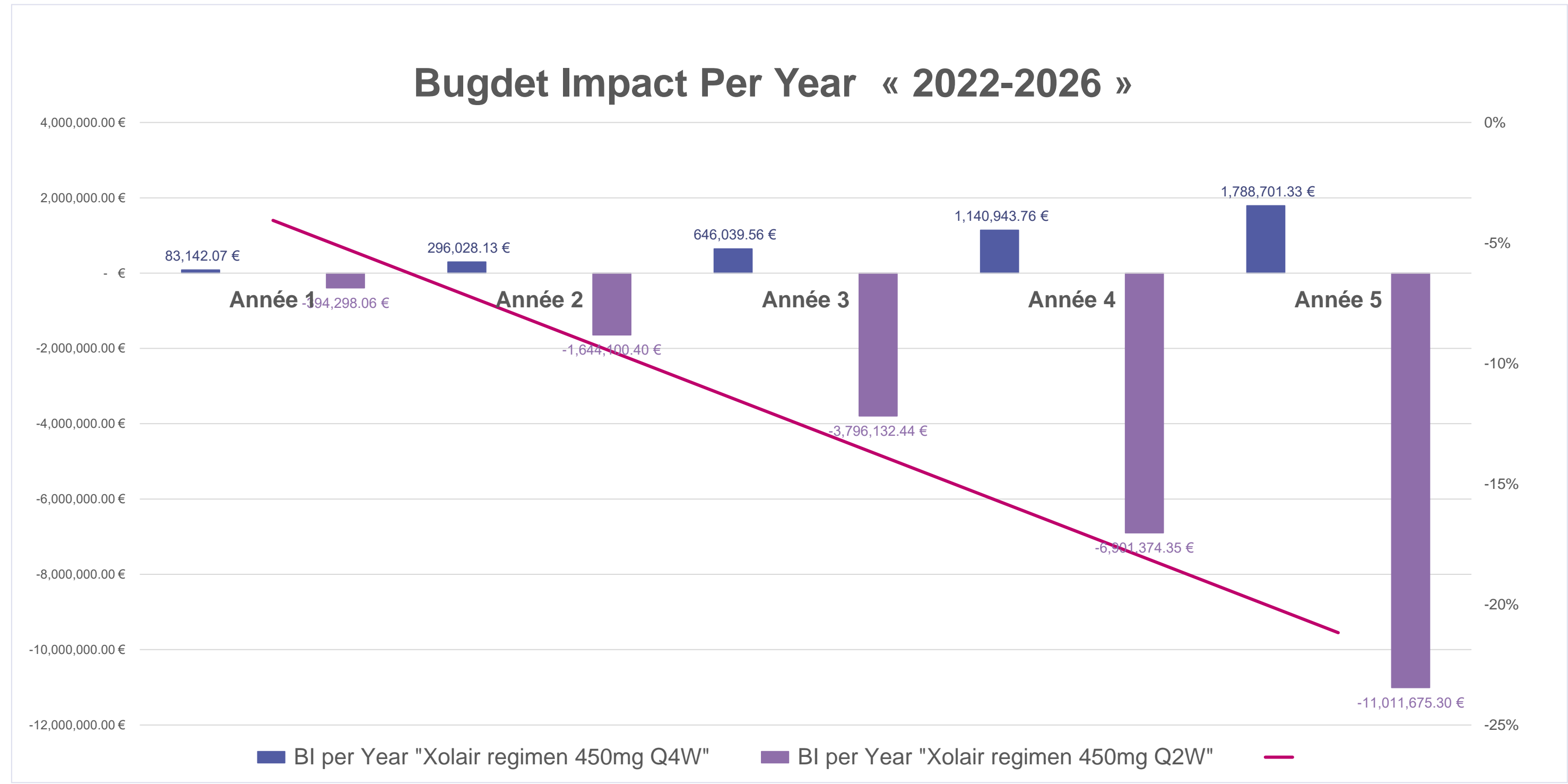
POSTER HIGHLIGHTS

Table 1: Budget Impact Ressources

	Populations	Costs	Exacerbations	Xolair & Dupixent Doses & Administration Frequency
Methodology	Patients with severe uncontrolled asthma with eosinophil phenotype with type 2 inflammation, aged 12 years and older	Direct costs : Treatment Costs Severe Exacerbation Costs	<ul style="list-style-type: none">Annual Frequency of exacerbations in severe asthma : 3Incidence Risk Ratio Vs placebo: - Dupilumab : 0,49 - Omalizumab: 0,66	<ul style="list-style-type: none">2 assumption for Omalizumab regimen : 450mg q4w & 450mg q2wDupixent: 200 mg q2w (26 Syringes per Year From the 2nd Year)
References	<ul style="list-style-type: none">The National Statistical Office (ONS)¹AIRMAG study²International ATS/ERS data³Opinions of KoLs specialists in pneumo-allergology in Algeria	<ul style="list-style-type: none">Navlin Data 2023IDIRI.Y. Epidemiology of asthma and economic assessment trial of its management in a hospital setting: case of bejaia fanon frantz Hospital⁷	<ul style="list-style-type: none">Bousquet, Jean et al.¹²Bateman, Eric D. et al.¹³	<ul style="list-style-type: none">Xolair regimen Depend on patient characteristics(IgE level & patient weight)SmPC Omalizumab 150 mg : www.ema.europa.euSmPC Dupilumab 200 mgKoL Inputs

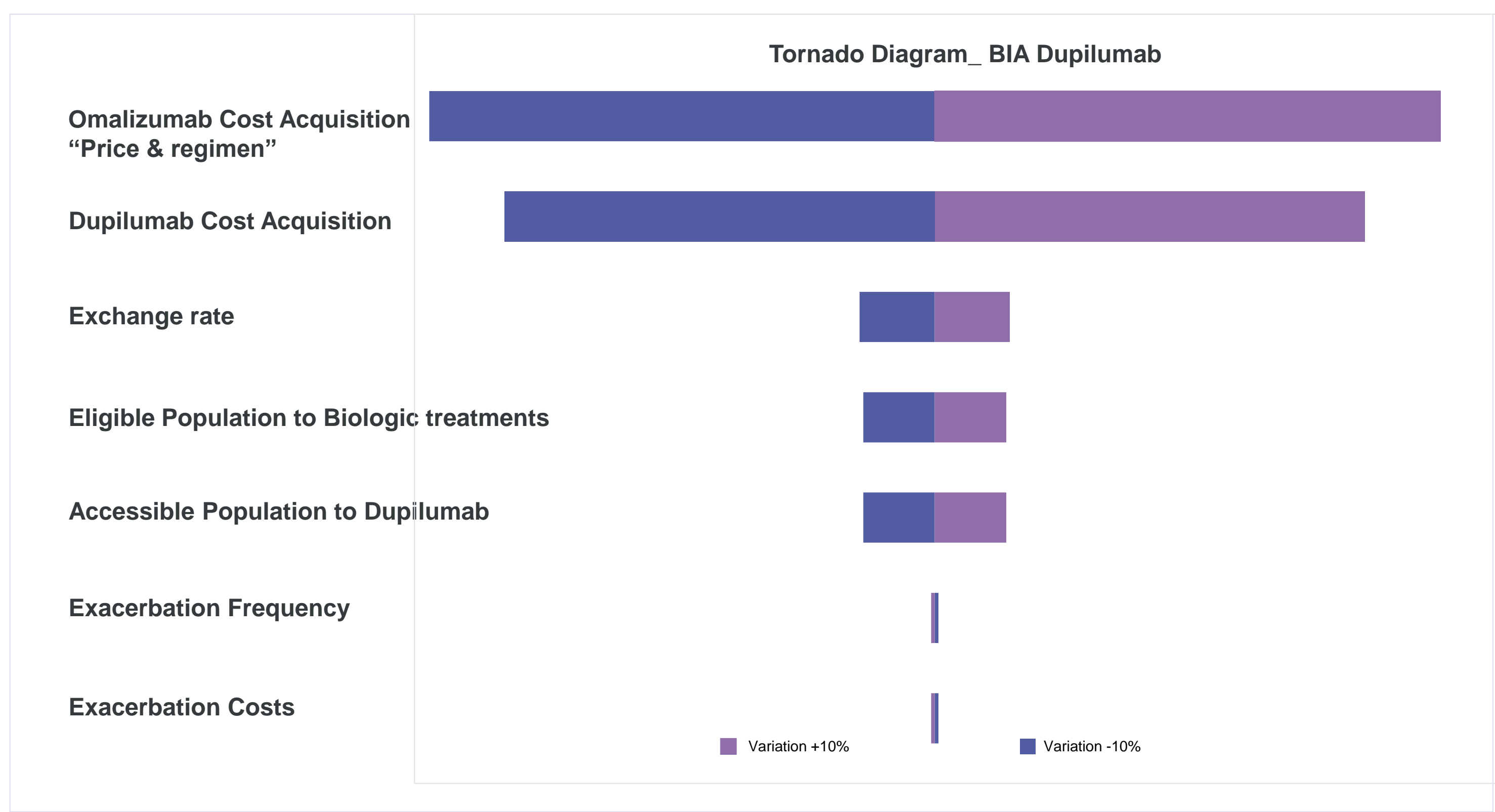
q2w: every 2 weeks; q4w: every 4 weeks.

Figure 3: Budget impact 2022-2026



*Exchange rate : 1 EUR = 160DZD

Figure 4 : Tornado Diagram - Sensitivity Analysis



CONCLUSIONS

- The total budget for the introduction of Dupilumab 200 mg in Algeria could have a considerable saving impact depending on the patient characteristics on health expenses (for both PCH and hospitals budgets). Hence dupilumab 200 mg as an innovative drug is characterized with beneficial clinical and economic value.

RESULTS

- The results showed a variable total budget impact (which could be positive or negative).
- This varies according to the patient characteristics and can go up to a saving of 20% over 5 years compared with the current market with Omalizumab.
- The breakdown of the budget impact between initiation and maintenance of treatment varies between +1 M Euro & - 6 M Euro for initiation of treatment, +2.6 M Euro & - 17 M Euro for maintenance of treatment with Dupilumab 200 mg.
- The sensitivity analysis respects the assumptions of the base case, the main drivers are cost of medication and the target population.

DISCUSSION

- The BI model was developed in MS Excel, it is a dynamic and flexible model that allows payers to adjust scenarios.
- this analysis showed a variability in terms of Budget impact (more negative than positive)
- While cost of dupilumab treatment is fixed for patients with severe uncontrolled asthma allowing more resource use predictability, costs of omalizumab treatment are highly variable depending on patient characteristics.
- This analysis remains in favor of the introduction of Dupilumab on the Algerian market taking into consideration other parameters like the medical unmet need for existing treatments, the clinical value of dupilumab and the benefit of having more therapeutic alternatives.
- The sensitivity analysis respects the assumptions of the base case, the main factors are drug costs and the size of the target population, which reflects the potential impact on the analysis.
- The study limit is the dose of Omalizumab which varies according to patient's body weight and serum IgE level. As a hypothesis, for a patient with an average weight of 50-60 kg (according to the SmPC data), an average dose was considered for the 2 possible scenarios (Q2W & Q4W).

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