# Reducing Complications in patients living with Type 2 Diabetes by an Optimized Management of Weight and Glycemia and their Associated Savings

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### **INTRODUCTION AND OBJECTIVE**

Clinical guidelines recommend a holistic management of type 2 diabetes (T2D) patients, integrating body weight and glycaemic management and cardiokidney protection<sup>1</sup>. This approach might potentially lead to reduced incidence of complications and, therefore, healthcare cost savings.

Specifically, the **objective** of this project was to estimate the potential cost savings by reduction of T2D related complications derived from optimizing patient management from a Spanish healthcare system perspective.

#### **METHODS**

Two pragmatic literature reviews were carried out to identify common T2D-related complications and gather evidence on the impact of changes in glycated haemoglobin (HbA1c) and weight on these complications. Additionally, evidence of the association between weight and HbA1c levels was searched. With this data, a three-step analysis was conducted for Spanish T2D patients: 1) estimation of the effect of weight and HbA1c reduction on the risk of complications, 2) estimation of healthcare costs derived from T2D complications, and 3) estimation of the potential cost savings derived from weight and HbA1c reduction. 5% weight reduction + 1% HbA1c reduction was analyzed since these are common treatment targets in T2D treatment and clinical trials<sup>2</sup>. Costs of complications were calculated based on diagnosis-related groups (DRGs). The time horizon of the analysis was one year.



Figure 1. Inputs and outputs of the estimation model.

#### RESULTS

Out of the literature review, 28 scientific papers reported an association of weight and/or HbA1c with T2D complications, categorized as traditional (macrovascular and microvascular) and emergent. A combined reduction of 5% weight and 1% HbA1c was associated with estimated incidence reductions of complications ranging between 2% for heart failure (n=110), 19% for retinopathy (n=12,000), up to 31% for stroke (n=800) (Figure 1). These results were calculated based on 8 scientific papers reporting weight changes and 6 reporting HbA1c changes.

In Spain, achieving these targets in T2D patients could prevent 23% of T2Drelated complications (n=95,000) (Table 1), which would result in total annual savings of around  $\in$ 1,050M (Table 2). These savings would represent a 24% reduction in costs associated with T2D-related complications. When disaggregated by complication, this translates into savings ranging from  $\in$ 0.4M (2%) for heart failure to  $\in$ 103M (19%) for retinopathy and  $\in$ 820M (25%) for diabetic neuropathy.

Avoided cases (n)	Decrease in cases (%)	Avoided costs (€)	Cost savings (%)
95,000 [35,000 – 141,000]	23% [12% – 37%]	€1,050 x 10 <sup>6</sup> [€300 x 10 <sup>6</sup> – €1,620 x 10 <sup>6</sup> ]	24% [11% – 41%]
			25%
Cases in the base situation (n)			208.672
Cases in the new situation (n)			
% Decrease in cases (base vs new situation)			
			155.9
000			
000			
		16%	19%



Figure 1. Cases (n) and decrease in cases (%) base vs. new situation

## CONCLUSIONS

These results reveal a potential decrease in the incidence of complications by optimizing glycaemic and weight control, which will likely lead to cost savings in the management of T2D patients in Spain.

BMI: body mass index; DRG: diagnosis-related group; HbA1c: glycated haemoglobin; NSH: national healthcare system; T2D: type 2 diabetes mellitus. 1. ADA/EADS. Davies MJ, et al. Diabetes Care 2022; 45(11):2753-2786. 2. Mata-Cases, M. et al. Front Endocrinol 2022; 12, 810757. ISPOR 2024, 17-20<sup>th</sup> November Virginia Pascual, PhD VGPL@novonordisk.com

