

INTRODUCTION

Type 2 diabetes mellitus (T2D) is a chronic disease with high healthcare costs. Also, diabetes management in individuals with kidney impairment or older adults requires special considerations.

OBJECTIVE

This study aims to compare costs between second-generation basal insulins Glargine-300U/ml (Gla-U300) and Degludec-100U/ml (IDeg-U100) associated with macrovascular events (ME) in an older population (>70 years old) or with renal impairment (eGFR<60), diagnosed with T2D according to HbA1c levels in Panama, Salvador, Guatemala, and Honduras.

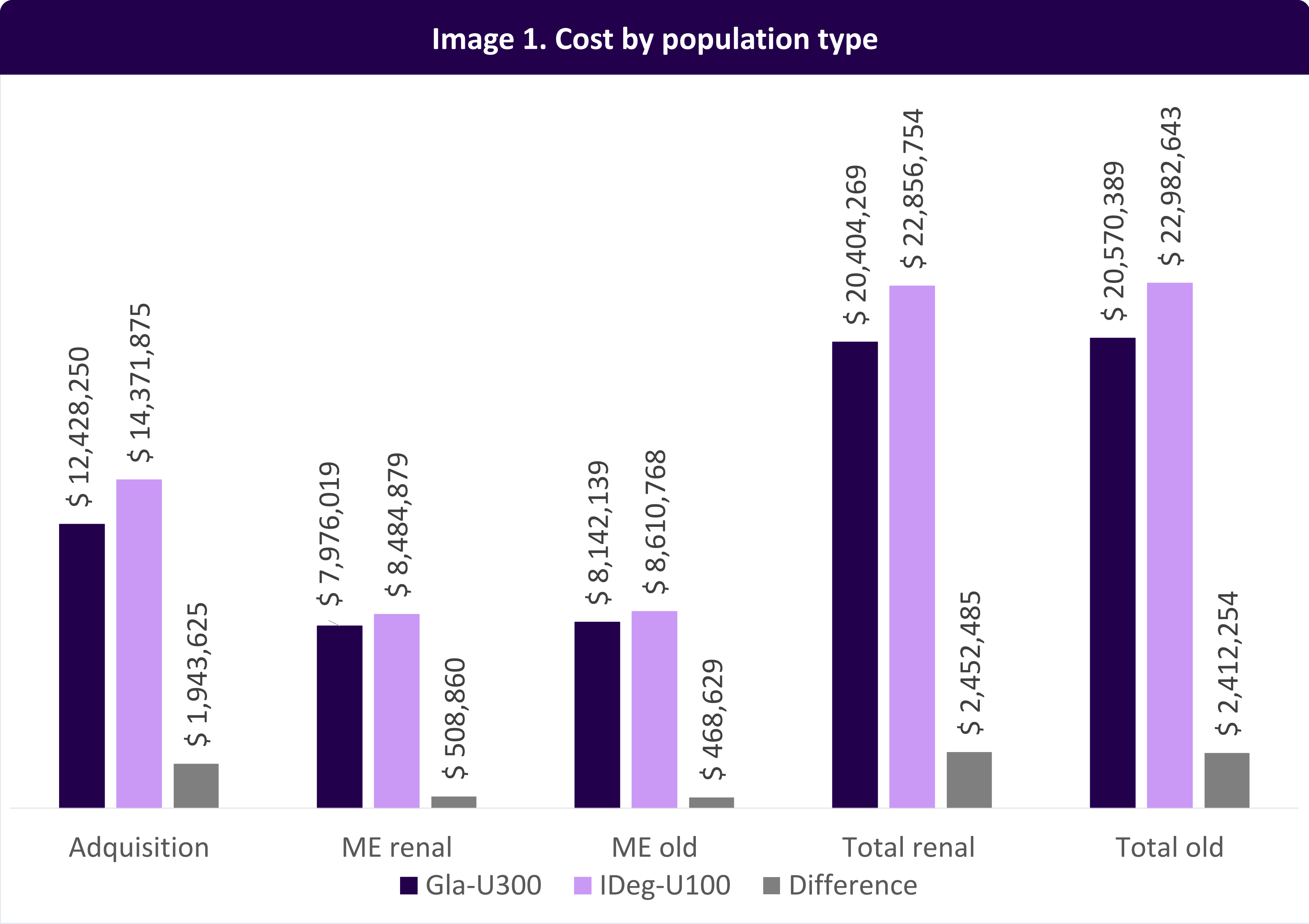
METHODS

- An economic model was developed to analyze costs based on the occurrence of T2D-associated ME.
- Clinical data for risk profile and incidence of ME were taken from the UKPDS¹.
- HbA1c reduction was taken from the BRIGHT clinical trial, particularly the pre-planned subgroup analysis for the renal impairment population² and a post hoc analysis for the older population³.
- The outcomes included were: Myocardial Infarction (MI), Stroke, and Heart Failure (HF) resulting from risk profile including the HbA1c percentage reduction of each therapy.
- The ME costs were obtained from local published literature⁴.
- The analysis was made for a hypothetical cohort of 10,000 people in each country for a 1-year time horizon.
- All costs are expressed in 2022 USD\$.

POSTER HIGHLIGHT: This modelling based on a sub analysis of the BRIGHT study, suggests that the use of Glargine-U300 provides better clinical outcomes in terms of HbA1c reduction, resulting in lower total expenses for both populations with renal impairment and the elderly.

Table 1. HbA1c reduction			
HbA1c reduction	Gla-U300	IDeg-U100	Source
Renal impairment	1.72%	1.30%	Haluzik et al, 2020
Older population	1.58%	1.20%	Bolli et al, 2021

Table 2. Average treatment total costs			
IU Cost	Gla-U300	IDeg-U100	Source
Average IU cost	\$0.116	\$0.128	Market Research for average Pharmacy Price
Min IU cost	\$0.096	\$0.113	
Max IU cost	\$0.136	\$0.144	
Population Cost			
Average	\$12,428,250	\$14,371,875	Calculations for 10,000 patients for a 30IU daily dose
Min	\$10,512,000	\$14,892,000	
Max	\$14,892,000	\$15,877,500	



RESULTS

- For renal impairment people, HbA1c reduction of 1.72% with Gla-U300 and 1.30% with IDeg-U100 was reported², whereas, in the older population, a reduction of 1.58% for Gla-U300 and 1.20% for IDeg-U100 was reported³.
- On average, for the four Latin-American countries, treatment costs of \$12,428,250 (\$10,512,000 - \$14,892,000) for Gla-U300 and \$14,371,875 (\$13,687,500 - \$15,877,500) for IDeg-U100 were estimated.
- Average ME costs were \$22,894 for MI, \$23,633 for Stroke, and \$6,293 for HF. By using Gla-U300 in both populations ME costs decrease around 5.44% - 6.00%.
- For renal impairment people, total cost with Gla-U300 was \$20,404,269 (\$18,488,019 - \$22,868,019) and \$22,856,754 (\$21,843,87 9-\$23,048,379) with IDeg-U100, for a 10.76% (6.25% - 19.79%) difference.
- For older people, total cost with Gla-U300 was \$20,570,389 (\$18,654,139 - \$23,034,139) and \$22,982,643 (\$21,969,768 - \$24,488,268) with IDeg-U100, for a 10.52% (6.03%-19.50%) difference.

CONCLUSIONS

This analysis based on a sub-analysis of the BRIGHT study may suggest that compared to IDeg-100, Gla-U300 results in lower projected ME costs, for different countries in Latin America. With T2D renal impairment and older populations growing, improving cardiovascular risk by reducing HbA1c in T2D people is critical to avoid costs for the healthcare system. These results can encourage decision-makers in LATAM to invest in Gla-U300 as the long-acting insulin of preference.

REFERENCES

1. Stratton, I. M., et al. (2000). Association of glycaemia with macrovascular and microvascular complications of type 2 diabetes (UKPDS 35): prospective observational study. *BMJ*, 321(7258), 405-412.
2. Haluzik M., et al. Differential glycaemic control with basal insulin glargine 300 U/mL versus degludec 100 U/mL according to kidney function in type 2 diabetes: A subanalysis from the BRIGHT trial. *Diabetes Obes Metab*. 2020 Aug; 22 (8): 1369-1377.
3. Bolli G.B., et al. Glycaemic control and hypoglycaemia risk with insulin glargine 300U/mL and insulin degludec 100U/mL in older participants in the BRIGHT trial. *Diabetes Obes Metab*. 2021 Jul; 23 (7): 1588-1593.
4. Perez, G., et al. (2022). Evaluación del impacto clínico y económico del paciente con diabetes mellitus con acceso a automonitoreo en Panamá. *Revista de la Asociación Latinoamericana de Diabetes*, 11, 29-39.