Objective:
The aim of this analysis was to evaluate cost-utility of biphasic insulin aspart (BiAsp) as compared with premixed human insulin (Premix) in type 2 diabetes mellitus in Poland.

Methods:
- A cost-utility analysis based on the CORE Diabetes Model (new core-diabetes complications model) was carried out to determine the relationship between long-term direct costs incurred by the National Health Fund and patients, life years gained (LYG) and quality-adjusted life years (QALY)
- The CORE Diabetes Model is a complex tool allowing for evaluation of long-term health and economic outcomes of different treatment options in diabetes mellitus. It is based on a series of interconnected sub-models representing diabetes complications. Results are evaluated throughout a course of microsimulations, where defined number of patients is run through the model. Transition probabilities between sub-model states depend on cohort baseline characteristics as well as patient’s health status changing over time (i.e. developing complications changes transition probabilities). The risk of events in the model changes also according to whether or not patients are on ACEI, statin or aspirin treatment. In addition, for DM type 2 simulations comparison between sequences other than single-line treatment can be made.
- The CORE Diabetes Model is based on data from published trials (The Framingham Heart Study, Diabetes Control and Complications Trial), but all crucial parameters may be changed by the user.
- Effectiveness of specific treatments was expressed as change in the HbA1c level and hypoglycaemia rates.
- Costs were calculated from the public payer (NHF – National Health Fund) + patient perspective.
- The time horizon in the model was set to 30 years in order to calculate estimated costs and outcomes in the model over a lifetime period into account baseline cohort age, it is unlikely that patients will survive assessed period of time and therefore time horizon can be referred to as lifetime.
- Incremental cost per QALY and per LYG gained were calculated.
- In order to estimate the probability of BiAsp being cost-effective in Polish settings (a threshold of ca. 91,000 PLN), bootstrap simulations were performed.
- Costs and outcomes were discounted according to the Polish HTA Agency guidelines. The discount rates used were 5%.
- A cost-utility analysis based on The CORE Diabetes Model was updated according to the Consumer Price Index and used in the analysis.

Results:
- Table 4. Cost and effectiveness comparison, ICERs
- Table 5. Breakdown of direct costs
- Table 6. Abbreviations
- Figure 1. PSA results for QALY
- Figure 2. PSA results for LYG
- Figure 3. CEAC for LYG, NHF + patient perspective
- Figure 4. CEAC for LYG, NHF + patient perspective
- Table 7. Breakdown of direct costs
- Table 8. Breakdown of direct costs
- Table 9. Breakdown of direct costs

Conclusion:
- Biphasic insulin aspart improves quality of life reflected by higher QALY values. Despite higher treatment-associated costs, biphasic insulin aspart’s cost-effectiveness in Polish settings.
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