Assess the cost-effectiveness of sitagliptin versus sulfonylurea as an add-on treatment to metformin in patients with type 2 diabetes in a Belgium setting.

**Objective**

- Assess the cost-effectiveness of sitagliptin versus sulfonylurea as an add-on therapy to metformin in patients currently on metformin but not reaching glycaemic targets with this therapy alone.

**Methods**

- A policy model published in a related decision model was incorporated into the economic model from the University of Cambridge (UK) to predict the long-term costs and effects of sitagliptin versus sulfonylurea in patients with type 2 diabetes.

- The impact of on-treatment and off-treatment factors and the baseline was based on clinical trial data from the phase II and III trials of sitagliptin and sulfonylurea. Baseline characteristics included age, gender, BMI range, diabetes duration, and smoking status.

- European population studies and Belgium-specific data on drug prices, diabetes-related complications, financial costs, treatment patterns, and guidelines were used.

- JANUVIA® (sitagliptin) Diabetes Economic (JADE) model:
  - An individual-level algorithm used to track the long-term impact of alternative treatment strategies on health outcomes, costs, and cost-effectiveness for 7212 patients.
  - Incorporating an integrated net of risk equivalences (JADE) from the University of Cambridge model and its result in allowing a treatment strategy comprising a combination of sitagliptin and metformin.

- Extrapolation is a complete treatment algorithm to account for the impact of a new treatment on baseline risk factors (age, BMI, lipid profile, weight, and side effects like hypoglycaemia, CHF, weight change over time.

**Baseline Characteristics**

- Patient baseline characteristics are derived from a retrospective (2001-2006) clinical data (Diabetes Care) European project T2D-change: Transition from initial metformin-based therapy to subcutaneous insulin treatment in patients with HbA1c greater or equal to 6.8% and BMI lower than 30 kg/m². Positions of all patients with HbA1c greater or equal to 6.5% but lower than 9% are excluded from the T2D-Change study (EULAR 2009)

**Comparator Treatment Pathways**

- Each patient had a chance for treatment switching.

**Costs**

- Costs of diabetes-related complications:
  - Included acute and follow-up costs, both inpatient and outpatient.
  - Local costs collected from literature.

- Costs of adverse events:
  - Only diabetes complications considered in the model with reimbursement divided by a local panel of experts.

**Cost-Effectiveness of Sitagliptin vs Sulfonylurea**

- **Table 3. Costs of diabetes-related complications in Belgium**

**Utility Decrements**

- **Table 6. Utility decrement for hypoglycaemia**

**Efficacy and Safety Inputs and Assumptions**

- **Table 8. Summary of base case analysis**

**Results**

- Over the lifetime horizon, MF+Sita strategy was projected to cost Euro 1,102 more than MF+SU strategy per patient, with the majority of costs coming from prescription drug costs.

- The life expectancy was 0.07 years greater per patient with MF+Sita strategy than with MF+SU strategy. The estimated discounted incremental QALY was 0.02 years, favouring MF+Sita strategy due to better hypoglycaemia, weight, and MI risk profile.

- The estimated ICER for the base case was Euro 1,460 per QALY gained (discounted costs/discharged QALYs). The estimated ICER indicated sitagliptin strategy would be cost-effective compared to sulphonylurea even at a CE threshold of Euro 15,000 per QALY gained.

**Table 9. Projected diabetes-related complications or death at 5-year and 10-year (base case)**

**Table 10. Sensitivity analyses**

- Variability in NICE’s ICER threshold at a 10% rate increased the MF+Sita strategy to cost-effectiveness at CE thresholds of Euro 15,000 per QALY gained (EULAR 2009).