Introduction

- Type 2 diabetes mellitus (T2DM) is associated with substantial reductions in patients’ health-related quality of life and a high level of healthcare resource use.
- In Italy, more than 3 million people are living with T2DM, with an annual cost exceeding €20 billion, including direct and indirect costs.
- Optimal glycaemic control is important in people with T2DM to reduce disease burden and complications.

- Capillary blood glucose monitoring is a standard component of diabetes care.
- However, capillary blood glucose monitoring is time-consuming, inconvenient, and may interfere with patients’ daily lives.
- In addition, SMBG does not provide comprehensive information on daily glucose fluctuations and responses to insulin.

- In Italy, more than 3 million people are living with T2DM, with an annual cost exceeding €20 billion, including direct and indirect costs.
- The DEDUCE model assigns costs and utilities according to the complications and acute episode incidence and history of complications updated each 1-year cycle.
- In addition, SMBG does not provide comprehensive information on daily glucose profiles, which may be particularly useful when patients are using insulin therapy.

Analysis overview

- The DEDUCE model was runs using Microsoft Excel for 10,000 patients over a lifetime horizon.
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- The results were generally consistent across all scenarios tested.

Discussion

- The results were generally consistent across all scenarios tested.
- The largest increase in ICER was found when HbA1c reductions were taken from an RCT evaluating the use of FSL by patients with T2DM on non-insulin treatment.
- However, the results were generally consistent across all scenarios tested.

Materials and methods

Microsimulation model

- DEDUCE (Diabetes Externalities Utilities, Costs, and Effects) is a recently developed, validated, patient-level microsimulation model.
- The DEDUCE model assigns costs and utilities according to the complications and acute episode incidence and history of complications.
- The model is designed to simulate the clinical and economic outcomes of different diabetes management strategies.

Model inputs and assumptions

- Target population:
  - Patient characteristics (Table 1) were based on Italian patient data, randomized controlled trials (RCTs) and a real-world database.
  - Treatment effects and complications.
  - The effect of FSL on HbA1c was modeled as a 0.8% reduction relative to SMBG.
  - In addition, the results were generally consistent across all scenarios tested.

- Costs:
  - The costs of glucose monitoring were calculated based on the use of 26 FS sensors per year or 5.5 fingersticks per day and cost per event.
  - Costs associated with diabetes-related complications and ADEs were taken from Italian data.

- Sensitivity analyses:
  - Probabilistic sensitivity analysis was conducted varying discount rates, treatment effects, complications, utilities and costs.

Table 1. Patient characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
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<tbody>
<tr>
<td>Age (years)</td>
<td>68.1 (12.7)</td>
</tr>
<tr>
<td>Gender (%)</td>
<td>46.7%</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Hispanic 8%</td>
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<tr>
<td>Baseline risk factors</td>
<td>HbA1c (mg/dL) 8.7 (9.9)</td>
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<tr>
<td>Lipid profile</td>
<td>HDL cholesterol 41.8 (11.6)</td>
</tr>
<tr>
<td>Albuminuria</td>
<td>Serum albuminuria creatinine ratio 99.5 (20.5)</td>
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</tbody>
</table>

Table 2. Scenario analyses

- All scenarios were run as an incremental cost-effectiveness analysis.

Table 3. Scenario analyses

- All scenarios were run as an incremental cost-effectiveness analysis.

Conclusion

- From an Italian healthcare system perspective, FSL can be considered to be cost-effective compared with SMBG for people with T2DM using basal insulin therapy.

Acknowledgements

- Medical writing support for this analysis was provided by Phil Dafydd from Medpharm Solutions (UK), and the model evaluation was funded by a grant from the Novo Nordisk Foundation, and no conflicts of interest.

Disclosures

- Philip Dafydd is an employee of Medpharm Solutions, a company providing medical writing services. Sarah Avery, Joanne Baring, branding manager, and Thomas Akerlund, Nils-Henrik Berg, and Rikard Larsson, branding manager, are employees of Medpharm Solutions. Sarah Avery, Joanne Baring, branding manager, and Thomas Akerlund, Nils-Henrik Berg, and Rikard Larsson, branding manager, are employees of Medpharm Solutions.