



Background

- Clinical evidence demonstrate the use of FreeStyle Libre systems (FSL) is associated with improved glycemic control and reduced diabetes complications compared to self-monitoring of blood glucose (SMBG) among people with Type 2 Diabetes (T2D) on insulin.
- FSL reimbursement in Israel remains limited to those with T1D or T2D on multiple daily injections of insulin (MDI).
- Previous publications have demonstrated that FSL is cost-effective compared to SMBG for people with T2D on basal insulin.^{1,2}
- Cost-effectiveness of FSL for the T2D population on basal insulin has not been previously studied in the Israeli healthcare system.

Methods

- A patient-level microsimulation using the validated Determination of Diabetes Utilities Costs and Effects Model (DEDUCE) framework, was developed to estimate the cost-effectiveness of FSL versus SMBG for 10,000 individuals with T2D on basal insulin over a lifetime horizon.³
- Costs included device acquisition, diabetes complication management, and acute diabetic events, adjusted to 2024 USD.
- FSL was associated with a HbA1c reduction of 0.5% compared to SMBG, based on a real-world evidence study.⁴
- Costs and outcomes were discounted at 3% annually, with quality-adjusted life-years (QALYs) as the primary outcome.

Objective: Estimate the cost-effectiveness of FSL compared to SMBG for people with T2D on basal insulin from the Israeli healthcare system perspective

Results

- FSL use was associated with a lifetime cost of \$136,764 compared to \$120,203 for SMBG, and a quality-adjusted life expectancy of 9.4548 QALYs compared to 9.0544 QALYs for SMBG, yielding an incremental cost-effectiveness ratio (ICER) of \$41,357 per QALY (quality adjusted life years) gained.
- Under the willingness to pay threshold of \$54,191 per QALY gained (Israel's GDP per capita in 2024), FSL is cost-effective compared to SMBG for the T2D population on basal insulin.
- FSL use was associated with avoidance of diabetes complications compared to SMBG over the lifetime of individuals with T2D on basal insulin. (Figure 1)
- Probabilistic sensitivity analysis, which was performed with 10% variance on model inputs, showed an ICER of \$42,444 per QALY gained, highlighting the robustness of results (Figure 2).
- FSL remained cost-effective vs SMBG under various scenarios (Table 1)

Figure 1: Number of complication events avoided per 10,000 individuals with T2D on basal insulin over the lifetime

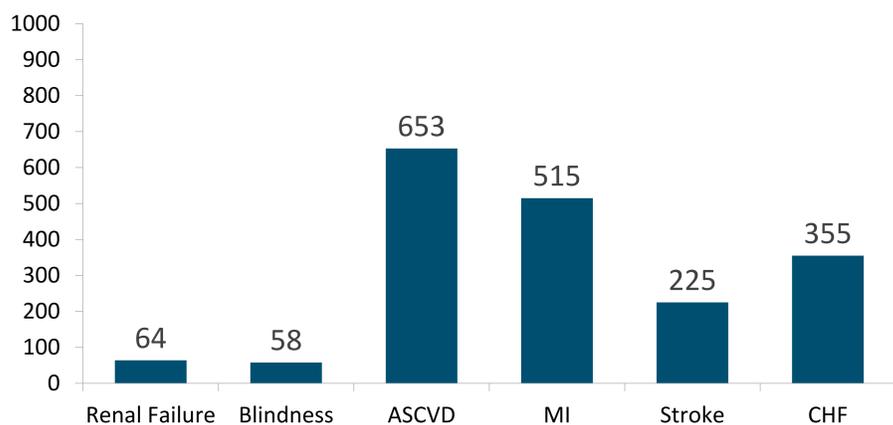


Figure 2: Probabilistic Sensitivity Analysis CE Scatter Plot

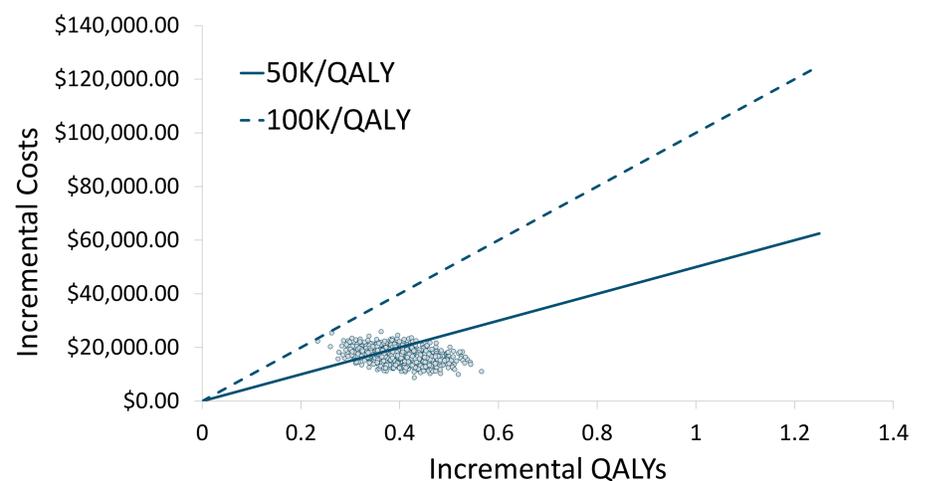


Table 1: Scenario Analyses

Scenario	ICER
Time horizon = 10 years	\$51,489 per QALY gained
Time horizon = 20 years	\$42,460 per QALY gained
Discount rate = 5%	\$42,518 per QALY gained
HbA1c reduction 0.8%	\$27,322 per QALY gained
10% reduction in sensor costs and 25% reduction in SMBG cost	\$37,631 per QALY gained
Assume no SMBG cost	\$45,654 per QALY gained

Conclusion

- FSL use is estimated to be cost-effective compared to SMBG for people with T2D on basal insulin from the Israel healthcare system perspective.
- Results are consistent with previous publications in Italy and the US showing FSL is cost-effective for people with T2D on basal insulin.
- Expanding FSL access to this population can lead to improved patient outcomes and cost savings to the Israel healthcare system.

Abbreviations

CE = cost-effectiveness; DEDUCE = Determination of Diabetes Utilities Costs and Effects Model; FSL = FreeStyle Libre systems; ICER = incremental cost effectiveness ratio; QALY = quality adjusted life years; SMBG = self monitoring of blood glucose; T1D = type 1 diabetes mellitus; T2D = type 2 diabetes mellitus.

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References

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