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## FreeStyle Libre Glucose Monitoring Systems in People with T2D on Basal Insulin: A Cost-Analysis from the Spanish Healthcare System Perspective

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The use of FreeStyle Libre systems in people with type 2 diabetes can produce cost savings compared with self-monitoring of blood glucose, which enhances the sustainability of the Spanish national health system while improving patient's health

**Background**

- The rising clinical and economic burden of type 2 diabetes (T2D) is a major concern worldwide<sup>1</sup>. Thus, novel technologies are key to improve patients' quality of life.
- Compared with self-monitoring blood glucose (SMBG), FreeStyle Libre systems (FSL) are convenient and effective devices for glucose monitoring<sup>2</sup>, which have proved to produce cost-savings in populations with type 1 diabetes<sup>3</sup>, and poorly controlled T2D on multiple daily insulin (MDI) injections<sup>4</sup> or basal insulin (BI)<sup>5</sup>.
- Given that those well-controlled patients with T2D suffer fewer diabetic complications<sup>6</sup> and could result in lower healthcare costs<sup>7</sup>, the economic impact of FSL in all patients with T2D on BI remains unclear.

The objective of this cost analysis was to compare FSL vs. SMBG in people with T2D on BI both poorly and well-controlled, from the Spanish National Health System (NHS) perspective

**Methods**

- An economic model estimated annual costs (€, 2025, VAT included when applicable) associated with glucose-monitoring resources and acute events (Table 1)<sup>8-15</sup>, which included severe hypoglycemic event (SHE), non-SHE and diabetic ketoacidosis (DKA). All model inputs were validated by Spanish clinical experts.
- National guides<sup>16</sup> recommend a daily usage of 2.5 strips (€0.57/unit)<sup>17</sup> and 2.5 lancets (€0.14/unit)<sup>17</sup> for poorly controlled patients (HbA1c≥8%, 18.8%)<sup>18</sup>; and 0.43 strips and 0.43 lancets for those well-controlled (HbA1c<8%, 81.2%)<sup>18</sup>.
- FSL required 26 sensors-year (€3.00/day) and reduced the use of strips and lancets by 83%<sup>2</sup>.
- Sensitivity analyses (SA) were conducted<sup>19-21</sup>.

	SMBG cohort	FSL reduction vs SMBG	Cost per event (€, 2025)
<b>Non-SHE</b>			
Annual incidence (percentage/year)	17.63 <sup>8</sup>	88.6% <sup>2</sup>	—
Management by specialist	21.6% <sup>8</sup>	—	€17.89 <sup>14</sup>
Self-management	78.1% <sup>8</sup>	—	€3.63
<b>SHE</b>			
Annual incidence (percentage/year)	2.5 <sup>8</sup>	88.6% <sup>2</sup>	—
Hospital assistance	26.1% <sup>14</sup>	—	—
Intubation	21.1% <sup>14</sup>	—	€3,512.08 <sup>14</sup>
No intubation	78.9% <sup>14</sup>	—	€2,138.08 <sup>14</sup>
No hospital assistance	73.9% <sup>14</sup>	—	€461.48 <sup>14</sup>
<b>DKA</b>			
Annual incidence (percentage/year)	2.5 <sup>8</sup>	88.6% <sup>2</sup>	—
Hospital assistance	87.1% <sup>14</sup>	—	€2,887.74 <sup>14</sup>
No hospital assistance	12.9% <sup>14</sup>	—	€3.63

**Figure 1. Base case results: Costs / year (1,000 patients T2D on BI)**

**Results**

- Among 1,000 patients, FSL could prevent 9,872 non-SHE; 1,450 SHE and 2 DKA annually, yielding to total cost savings of €618,016/year (Figure 1).
- The results of the SA are presented in Table 2.

	SMBG cohort	FSL cohort	Δ (FSL vs. SMBG)
Base Case	€2,664,133	€2,246,117	-€418,016
SA 1 (1.4 SHE/1000/year) <sup>22</sup>	€1,728,275	€1,769,478	+€41,203
SA 2 (FSL associated reduction of 20% in non-SHE / SHE) <sup>23</sup>	€2,664,133	€3,013,427	+€349,294
SA 3 (FSL associated reduction of 10.7% in DKA) <sup>24</sup>	€2,664,133	€2,247,139	-€417,013
SA 4 (Use of copayments at €0.00) <sup>25</sup>	€2,662,206	€2,210,089	-€452,117

**Figure 2. SA results: Costs / year (1,000 patients T2D on BI)**