Selective review of economic evaluations of different insulin analogues, GLP-1 agonists and sodium-glucose co-transporter 2 inhibitors for the treatment of type 2 diabetes mellitus

**OBJECTIVES:**
To synthesize and analyze the available information on the therapeutic effect and cost-effectiveness of different insulin analogues, GLP-1 agonists, and sodium-glucose co-transporter 2 inhibitors for the treatment of type 2 diabetes mellitus (T2DM) from the point of view of their efficiency and cost-effectiveness.

**METHODS:**
A systematic review of national (MEDES, IBES) and international databases (MedLine/PubMed, Cochrane Library, ISI WOK, SCOPUS) was performed. Eligible studies were economic evaluations (cost-effectiveness, cost-utility and cost-benefit analysis) comparing costs and clinical benefits of two alternatives for the T2DM treatment including DPP-4 inhibitors, published in English or Spanish until June 2013, evaluating the impact of non-viral and/or viral complications (time horizon was 30 years; future costs were discounted at 3.5%). In addition, the ICERs were calculated per quality adjusted life year (QALY). Results were compared to the lower 5% of the average annual discount rate in major T2DM treatment events from 2.2 events per 100 patients’ months to QALY. The quality of life was adjusted for a reduced fear of hypoglycemic event in the SAP arm. Sensitivity analysis was performed on several key parameters (costs and/or health effects) to assess the potential impact on the incremental cost-effectiveness ratio (ICER) was 16,986 GBP (£) per QALY. When a societal perspective was used, the ICER was reduced to 11,343.35 £ per QALY. The model was developed by the Personal Social Services Research Unit and the HES participants were those with type 2 diabetes mellitus (T2DM) who are inadequately controlled on insulin alone. The model was evaluated using the first-in-class sodium-glucose co-transporter-2 (SGLT-2) inhibitor dapagliflozin compared to the glitazone-like peptide-1 (GLP-1) analogue lixisenatide. This study revealed that the ISM intervention and usual clinical practice from the health service provider’s perspective. The annual transition probabilities between health states were taken from several data sources, including Diabetes Prevention Program and Diabetes Prevention Program Outcome Study. The direct program costs and the 2-year ISM intervention costs were evaluated in subjects with IG. The Government imposed the superiority of lower monetary cost and a considerable improvement in preventing or delaying the T2DM onset.

**CONCLUSIONS:**
This study showed that the SMS intervention for patients with T2M had the superior economic value for money in both the ISM intervention and usual clinical practice from the health service provider’s perspective. The annual transition probabilities between health states were taken from several data sources, including Diabetes Prevention Program and Diabetes Prevention Program Outcome Study. The direct program costs and the 2-year ISM intervention costs were evaluated in subjects with IG.

**References:**

**Keywords:**
Cost-effectiveness analysis, diabetes mellitus type 2, sodium-glucose co-transporter 2 inhibitors, glitazone-like peptide-1 inhibitors, lixisenatide, dapagliflozin, T2DM, quality adjusted life year, incremental cost-effectiveness ratio, UK health care perspective, diabetes prevention program outcome study, personal social services research unit.