Worth Their Weight? Cost-Effectiveness and Access Decisions for GLP-1 and GIP/GLP-1 Therapies

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01 BACKGROUND

- Obesity has an increasing global burden; in 2022, 890 million adults were living with obesity worldwide, more than twice as many as in 1990.[1]
- There are approximately 1.6 million premature deaths globally per year due to diseases such as diabetes, cancer, heart disease and stroke caused by overweight and obesity.[2]
- In recent years, glucagon-like peptide-1 (GLP-1) receptor agonists such as **semaglutide** and **liraglutide,** and dual gastric inhibitory peptide (GIP)/GLP-1 receptor agonists like **tirzepatide** have shown unprecedented efficacy in obesity treatment, with significant benefits in weight reduction, glycaemic control and cardiometabolic outcomes.[3,4]
- Originally developed for type 2 diabetes management, these therapies are increasingly used for obesity treatment. However, despite proven clinical benefits, uncertainty remains around the long-term efficacy and safety, cost-effectiveness and budget impact.
- Given the rising global burden of obesity and the growing use of these therapies, this study explored how health technology assessment (HTA) bodies appraise their clinical benefit, cost-effectiveness, and use of different access restrictions.

02 OBJECTIVES

- To compare HTAs for the weight-management drugs semaglutide and liraglutide (GLP-1 agonists) and tirzepatide (GIP/GLP-1 agonist), highlighting differences in the clinical evidence, cost-effectiveness assessments, recommendation decisions, and any access restrictions.

03 METHODS

- Publicly available HTAs for semaglutide, liraglutide and tirzepatide from **England** (National Institute for Health and Care Excellence [NICE]),[5–7] **Scotland** (Scottish Medicines Consortium [SMC]),[8–10] the **United States** (US; Institute for Clinical and Economic Review [ICER]*),[11–13] **Canada** (Canada's Drug Agency [CDA]),[14,15] **Australia** (Pharmaceutical Benefits Advisory Committee [PBAC])[16,17] and the **Netherlands** (Zorginstituut Nederland [ZIN])[18,19] were reviewed in May 2025.
- Information extracted included the recommendation decision, clinical and economic justifications, patient eligibility criteria, treatment conditions, stopping rules and incremental cost-effectiveness ratios (ICERs).

*For the US, Food and Drug Administration (FDA) documents were used to find the indication and clinical studies presented then information from ICER was used to supplement the cost effectiveness and budget impact commentary.[11–13,20,21]

04 RESULTS

Identified HTAs

- 14 HTAs were identified across the 6 countries: 5 for liraglutide, 6 for semaglutide and 3 for tirzepatide.[5–19]
  - Liraglutide had not been assessed in Australia.
  - The most recent drug to market, tirzepatide, had only been assessed in England, Scotland and the US.[7,10,13]

HTA outcomes

- Positive recommendations were achieved in 78.5% (11/14) of the assessments (Table 1).[5–19]
- Overall, 9 were recommended on first submission,[5–7,9–13,18] 2 were recommended after re-submission,[8,15] 2 were rejected on first submission with no resubmission,[14,19] and 1 was rejected both initially and after re-submission[16,17] (Figure 1).
  - Liraglutide was rejected on first submission in 40% (2/5) of submissions,[8,14] and semaglutide in 50% (3/6).[15,16,19]
  - Tirzepatide was rejected in 0% (0/3) of submissions.

HTA recommendation restrictions and conditions

- In HTAs from all countries except the US, positive recommendations were restricted to patients with **specific BMI thresholds**, ranging from ≥27–40 kg/m², depending on the presence and number of weight-related comorbidities (Table 2).[5–10,14–19]
- All positive recommendations were restricted to patients with **weight-related comorbidities**: (Table 2):[5–19]
  - In England (liraglutide) patients were required to have a high cardiovascular disease (CVD) risk as well as non-diabetic hyperglycemia.[5] In Scotland (liraglutide), patients were required to have pre-diabetes, as well as a type 2 diabetes and CVD risk.[8]
  - All other HTAs required patients to have at least 1 weight-related comorbidity,[5–19] except Australia (semaglutide), which required at least 2.[16,17]
  - For HTAs in Canada (liraglutide/semaglutide)[14,15] and the Netherlands (liraglutide/semaglutide),[18,19] comorbidities were only required if patients were in the lower of the two BMI thresholds.
- **Stopping rules or time restrictions** were applied in 50% (7/14) of HTAs (Table 2):
  - In England, Scotland (semaglutide/liraglutide) and the Netherlands (liraglutide), stopping treatment was recommended if <5% of the initial weight had not been lost in 6 months (England/Scotland) or 12 weeks (Netherlands).[5,6,8,9,18]
- In all cases, except liraglutide in the US, the recommendation was conditional on the drug being prescribed alongside a **low-calorie diet or exercise** programme (Table 2).[5–11,13–19]
- England, Scotland and Australia also required that semaglutide and/or liraglutide are prescribed in **specialist weight management services** (Table 2).[5,6,8,9,16,17]

Table 1: HTA decisions for GLP-1 and dual GIP/GLP-1 agonists[5–19]

Drug	England	Scotland	Netherlands	US	Canada	Australia
Liraglutide						
Semaglutide						
Tirzepatide						

Key: Green indicates the drug was recommended with restrictions/conditions, red not recommended, grey not yet assessed. All recommendations were made with either restrictions or conditions (see Table 2).

Economic evidence

Cost-effectiveness

- All 3 were considered cost-effective in **England** (ICERs £13,569–21,372) and **Scotland** (ICERs £10,549–13,512).[5–10]
- Despite high ICERs (liraglutide: $483,000; semaglutide: $237,000; tirzepatide: $197,023), all three drugs were recommended in the **US**.[20,21]
- In **Canada** a price reduction between 62–74% would be required for liraglutide to be cost-effective (ICER: $196,876), and a 67% reduction would be required for semaglutide (ICER: $185,646).[14,15]

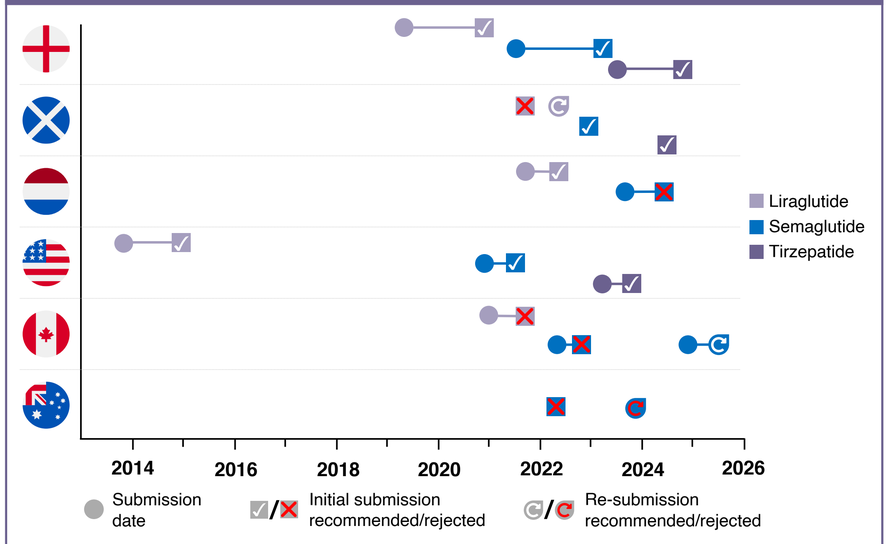
Budget impact

- Semaglutide was deemed to have a high budget impact in **Canada**,[15] the **Netherlands**[19] and **Australia**,[17] which contributed to its rejection in the latter two countries.
  - Scenario analysis indicated that the total budget impact for all eligible adults on semaglutide in the **Netherlands** could reach €1.3 billion.[19]
  - **Canada** estimated that a large treatment uptake could lead to a budget impact of $3 billion over 3 years.[15]
- In **Canada** the budget impact for liraglutide was estimated to be up to $488 million, which contributed to its rejection.[14]
- In **England**, tirzepatide was estimated to exceed £20 million per year in any of the first 3 financial years of use,[7] which led to NHS England requesting a longer time (12 years) to implement in the NHS.[22]
- In **Scotland**, limited budget impact information was available due to commercial in confidence.[8–10]

Clinical evidence

- In **England**[5–7] and **Scotland**,[8–10] all 3 drugs were considered clinically effective when used alongside supervised weight management support/lifestyle changes, compared with those participating in the latter alone.
- In the **Netherlands**, ZIN reported that liraglutide showed a clinical benefit in the high-risk population.[18]
- In the **US**, ICER concluded that liraglutide and semaglutide had a moderate–high certainty of a small–substantial net health benefit.[23] Tirzepatide was said to offer unprecedented weight loss.[13]
- The positive decision in **Canada** was based on clinical benefit in terms of the time to the first major adverse cardiac event vs placebo.[15]
- The **Canadian** rejection of liraglutide,[14] as well as the **Australian**[16,17] and **Netherlands**[19] rejection of semaglutide, were due to uncertainties over long-term efficacy.

Figure 1: Timeline of GLP-1 and dual GIP/GLP-1 agonist HTAs in England, Scotland, the Netherlands, the US, Canada, and Australia[5–19]



Note: Submission dates for PBAC (Australia) and SMC (Scotland) were not available.

Table 2: HTA recommendation restrictions and conditions for GLP-1 and dual GIP/GLP-1 agonists in England, Scotland, the Netherlands, US, Canada, and Australia[5–19]

Country	Drug	BMI (kg/m²)	Weight-related comorbidities	Stopping rules or time restrictions?	Alongside low-cal diet or exercise?	Prescribed in WM service?
England	Liraglutide	≥35	CVD risk, NDH	✗	✓	✓
	Semaglutide	≥35	≥1	✓	✓	✓
	Tirzepatide	≥35	≥1	✓	✓	✗
Scotland	Liraglutide	≥35	T2D + CVD risk, PD	✓	✓	✓
	Semaglutide	≥30	≥1	✓	✓	✓
	Tirzepatide	≥30	≥1	✗	✓	✗
Netherlands	Liraglutide	≥35/40*	≥1‡	✓	✓	✗
	Semaglutide	≥27/30*	≥1‡	✗	✓	✗
	Tirzepatide	–	–	–	–	–
US	Liraglutide	NA†	≥1	✗	✗	✗
	Semaglutide	NA†	≥1	✗	✓	✗
	Tirzepatide	NA	≥1	✗	✓	✗
Canada	Liraglutide	≥27/30*	≥1‡	✗	✓	✗
	Semaglutide	≥27/30*	≥1‡	✓	✓	✗
	Tirzepatide	–	–	–	–	–
Australia	Liraglutide	–	–	–	–	–
	Semaglutide	≥40	≥2	✓	✓	✓
	Tirzepatide	–	–	–	–	–

Key: Red highlight indicates the drug was not recommended
– indicates that the drug has not yet been assessed in the respective country
NA means the information was not available
*the higher BMI value applies to patients with no weight-related comorbidities
†US submissions were conditional on patients having obesity, without a specified BMI (and a weight >60kg for liraglutide)
‡comorbidity only required for lower of two BMI values
Abbreviations: BMI, body mass index; cal, calorie; CVD, cardiovascular disease; NA, not applicable; NDH, non-diabetic hyperglycaemia; T2D, type 2 diabetes; WM, weight management

05 DISCUSSION AND CONCLUSIONS

- The HTA agencies included in this study generally **recognised the short-term clinical benefits** of GLP-1 and dual GIP/GLP-1 therapies, with **use of restrictions** to specific patient populations, use of stopping rules, and requirements for lifestyle interventions reflecting broadly aligned clinical expectations.
- However, **uncertainty around long-term efficacy and safety**, **cost-effectiveness**, and **overall budget impact** led to notable disparities in reimbursement decisions and access restrictions between countries, which contribute to growing international health inequalities in the management of obesity.
- Furthermore, restricted NHS access in England and Scotland (e.g. specialist-only prescribing) has driven a surge in private use, with around **95% of UK semaglutide and tirzepatide prescriptions private by late 2024**.[24] This trend risks exacerbating health inequalities, as these treatments remain accessible primarily to those who can afford them.[24]

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