Projected Impact of Semaglutide on Healthcare Resource Utilisation in the United Kingdom

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Modelling the **theoretical maximum uptake** of semaglutide in the eligible UK population, an average of **6.6 million treated individuals per year over 5 years** is projected to avoid:

- **4.8 million** Obesity class II & III cases
- **22,081** T2D-related complications cases
- **129,903** CV events, including **16,118** CV deaths
- **5,501** MASH-related advanced fibrosis and cirrhosis (F3-F4) cases
- **11,870** Stage 4 CKD and kidney failure cases

→ **185,659** **hospitalisations**

→ **2.27 million** **bed days***

*equivalent to **1.8 times** the annual general and acute bed **capacity of an average NHS provider trust** in England.

Background

- Semaglutide has demonstrated clinically meaningful benefits across multiple obesity-related and cardiovascular-renal-metabolic (CVRM) conditions. Evidence from STEP[1-4] , SUSTAIN[5], SELECT[6], FLOW[7], and ESSENCE[8], demonstrate benefits including improvements in weight, glycaemic control, cardiovascular outcomes, renal outcomes and liver disease.
- Obesity-related and CVRM conditions frequently coexist in the same individuals[9], contributing to significant healthcare resource use (HCRU)[10].
- Conventional HTA value assessments typically evaluate treatments within a single indication[11] , potentially underestimating the effects of semaglutide across multiple indications.

Objective

To model the projected HCRU impacts of semaglutide across multiple indications in the UK, under a theoretical maximum uptake scenario.

Methods

A UK population-level, multi-indication model was developed to estimate the 5-year (2026 to 2030) healthcare impact of semaglutide for patients with obesity*, type 2 diabetes (T2D), cardiovascular disease (CVD), metabolic dysfunction-associated steatohepatitis (MASH) and/or chronic kidney disease (CKD). HCRU outcomes explored in this analysis consisted of hospitalisations and bed days and were sourced from literature.

Population | **Treatment effects** | **HCRU impact**

UK population eligible for semaglutide from 2026 to 2030, with:

- Obesity*
- T2D
- CVD
- MASH
- CKD

Baseline prevalence and overlap between conditions were derived from literature and projected to 2030.

Comparators
Semaglutide vs placebo or standard of care

Incident events
Derived from literature

Clinical evidence
Treatment effects derived from Phase III RCTs and RWE

→ **Reductions in clinical events and disease progression**

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- **Hospitalisations reduced**
- **Bed days reduced**

*Obesity population eligible with BMI ≥ 35 kg/m²

Conclusions

1. Semaglutide is projected to generate broad health and HCRU benefits across multiple overlapping cardiometabolic conditions.
2. In the context of rising chronic disease burden and pressure on NHS capacity, these findings highlight the potential for semaglutide treatment to reduce HCRU across multiple disease pathways.
3. The benefits of semaglutide treatment may extend beyond weight management through reduced healthcare demand across the wider healthcare system.

Results

Projected Change in Bed Days by Disease Area (2026-2030)

2.27 million bed days reduced (2026-2030)

CV events
1,403,681 bed days reduced
- Non-fatal MI = **430,183**
- Non-fatal stroke = **805,702**
- Heart failure = **22,733**
- CV-related deaths = **145,062**

Obesity-related complications (ORCs)
404,503 bed days reduced
- Knee replacement surgeries = **287,510**
- Sleep apnoea = **116,992**

CKD
181,021 bed days reduced
- Stage 2 = **-16,777**
- Stage 3a = **-107,638**
- Stage 3b = **-10,225**
- Stage 4 = **189,455**
- ESRD = **126,206**

T2D and related complications
283,127 bed days reduced
- Overall T2D** = **-23,653**
- Amputation = **281,074**
- Blindness = **186**
- Retinopathy = **115**
- Ulcer = **25,404**

Adverse events
2,870 more bed days
- Gastrointestinal = **2,870**

MASH
642 bed days reduced
- F3 = **0**
- F4 = **0**
- DC = **447**
- HCC = **183**
- Transplant = **12**

**Includes the overall T2D population, not only incident T2D cases.

Projected Change in Hospitalisations by Disease Area (2026-2030)

185,659 hospitalisations reduced (2026-2030)

CV events
115,235 hospitalisations reduced
- Non-fatal MI = **66,182**
- Non-fatal stroke = **44,761**
- Heart failure = **2,842**
- CV-related deaths = **1,451**

Obesity-related complications (ORCs)
54,475 hospitalisations reduced
- Knee replacement surgeries = **50,575**
- Sleep apnoea = **3,900**

CKD
9,112 hospitalisations reduced
- Stage 2 = **-2,973**
- Stage 3a = **-18,652**
- Stage 3b = **-1,614**
- Stage 4 = **20,876**
- ESRD = **11,473**

T2D and related complications
7,679 hospitalisations reduced
- Overall T2D** = **-4,452**
- Amputation = **8,031**
- Blindness = **62**
- Retinopathy = **38**
- Ulcer = **4,001**

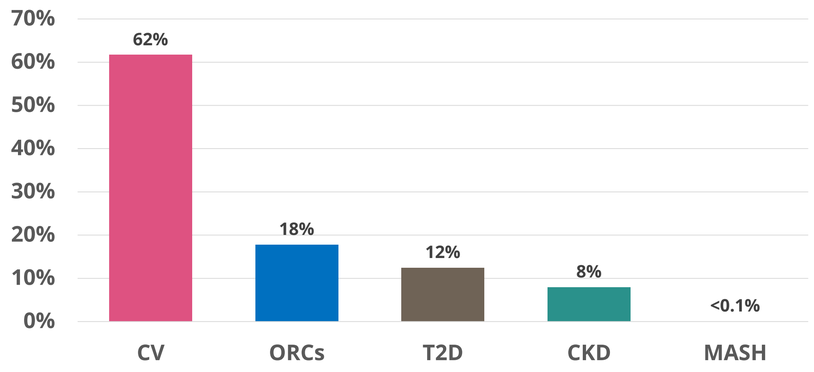
Adverse events
957 more hospitalisations
- Gastrointestinal = **957**

MASH
115 hospitalisations reduced
- F3 = **0**
- F4 = **0**
- DC = **89**
- HCC = **25**
- Transplant = **1**

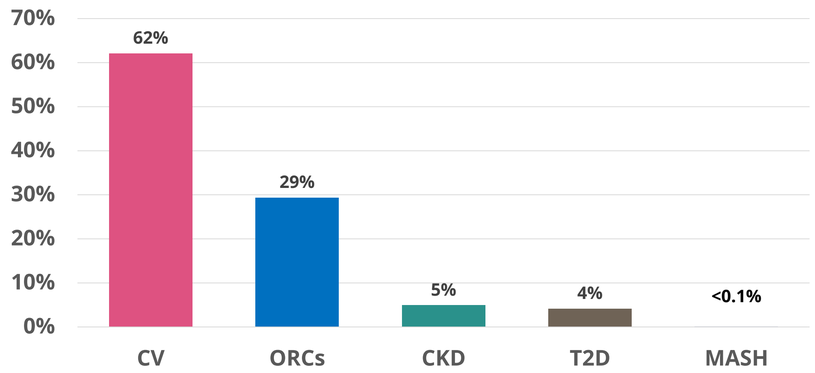
Negative values indicate an **increase** in bed days or hospitalisations. For CKD, these occur in earlier disease stages because treatment shifts the distribution of patients toward **less advanced stages**. For T2D, they reflect **increased survival** due to lower mortality from other comorbidities.

These results represent modelled projections under a theoretical maximum uptake scenario and should not be interpreted as forecasts of actual NHS implementation.

Disease Contributions to Projected Total Bed Days Reduced (%)



Disease Contributions to Projected Total Hospitalisations Reduced (%)



Abbreviations: CKD, chronic kidney disease; CV, cardiovascular; CVD, cardiovascular disease; CVRM, cardiovascular-renal-metabolic; DC, decompensated cirrhosis; ESRD, end-stage renal disease; HCC, hepatocellular carcinoma; HCRU, healthcare resource use; HTA, health technology assessment; MASH, metabolic dysfunction-associated steatohepatitis; MI, myocardial infarction; NHS, National Health Service; ORC, obesity-related complication; RCT, randomised controlled trial; RWE, real-world evidence; T2D, type 2 diabetes.

References: (1) Davies M et al. Lancet. 2021 Mar 13;397(10278):971–84 | **(2)** Wilding JPH et al. N Engl J Med. 2021 Mar 18;384(11):989–1002 | **(3)** Wadden TA et al. JAMA. 2021 Apr 13;325(14):1403–13 | **(4)** Rubino D et al. JAMA. 2021 Apr 13;325(14):1414–25 | **(5)** Marso SP et al. N Engl J Med. 2016 Nov;375(19):1834-44 | **(6)** Lincoff AM et al. N Engl J Med. 2023 Nov 11;389(24):2221-32 | **(7)** Perkovic V et al. N Engl J Med. 2024 May;391(2):109-21 | **(8)** Sanyal AJ et al. N Engl J Med. 2025 Apr;392(21):2089-9 | **(9)** Özyüncü N, Erol Ç. Anatol J Cardiol. 2025;29(8):384-93 | **(10)** Soley-Bori M et al. Br J Gen Pract. 2020 Dec 1;71(702):e39–46 | **(11)** NICE technology appraisal and highly specialised technologies guidance: the manual (PMG36). [Updated 2026 March 31].

Additional poster from this research
Projected Wider Societal and Fiscal Impact of Semaglutide in the United Kingdom (Poster code: EE482)
Results have been updated since abstract submission following a correction to HCRU inputs.