Cyflwynwyd yr ymateb i ymgynghoriad y Pwyllgor Iechyd a Gofal Cymdeithasol ar Atal iechyd gwael - gordewdra

This response was submitted to the Health and Social Care Committee consultation on Prevention of ill health - obesity

OB15a : Ymateb gan: Dr Angela Meadows| Response from: Dr Angela Meadows

Prevention of ill health – Obesity

Additional evidence – Weight loss medications: A triumph of marketing over medical care

Executive Summary

- The drugs currently being marketed as weight-loss (WL) medications were **originally developed for control of blood sugar in diabetes**. They are **not considered first-line medications** for diabetes, partly **because of the serious side effect profile**.
- **Weight-loss is a side-effect** of these medications, not the target outcome. Semaglutide is **marketed for weight-loss at above the maximum recommended human dose** and tirzepatide at the maximum dose, with the **goal of maximizing the side effects of the drugs**. While this includes weight-loss, it also includes a wide range of other life-threatening and chronic life-limiting side effects (see Section 3 below for details of side effects).
- Data from the manufacturers' own studies indicates that the **initial weight loss tapers off after a year, with some indication of slight rebound**; however, **long-term effects are unavailable** as studies have not been conducted with long-term follow-up. (See Section 1 below for details of WL effectiveness.)
- Across most published studies, **less flattering findings are often excluded from the peer-reviewed papers** and buried in the supplementary material, which is not subject to peer review.
- Weight-loss outcomes are highly variable, with **many patients failing to reach even minimal (5%) weight-loss**. Only a small percentage of patients move out of the higher-weight BMI categories.
- **Absolute risk reduction of primary cardiovascular outcomes was limited** for semaglutide, but these **data were misrepresented in both press releases and study abstracts** by using relative risk, which inflates the apparent benefits considerably. Additionally, **no significant effects were found in multiple subgroups of patients, including women, Black and Hispanic populations, older and younger populations, and, critically, those with a BMI above 35 kg/m^2. This information was** provided in the study appendix and **not in the paper itself**. It may not have been viewed by peer reviewers. No cardiovascular trials have been published for tirzepatide in the general population. (See Section 2 below for details of cardiovascular effectiveness.)
- **Tolerance** for the medications is **low** with **many patients having to stop taking the drugs** for this reason. Data from withdrawal studies indicates **immediate and steep weight rebound** on cessation of the medications. Withdrawal effect data are not available for beyond 1-year follow-up; however, **evidence from decades of research of weight-loss interventions suggests that up to 2/3 of individuals will regain more weight than they lost, with a worse metabolic profile that before they started**. (See Section 3 below for details of side effects and Section 4 below for details of withdrawal effects.)
- **Previously approved WL medications** were found to cause **severe adverse effects** and **increased fatalities** not apparent prior to introduction to market and **later had to be withdrawn**.
- **Authors** on published papers **overwhelmingly either work for the drug manufacturers or**, as researchers and clinicians, have **received millions of pounds in payments from them**. **Many also hold stock in** the pharmaceutical companies whose products they are testing. (See Section 5 below for further details.)
- **Extensive conflicts of interest existed for those giving evidence to NICE** health technology assessments for WL medications (see Section 5 below for more information).
- It should be noted that pharmaceutical companies' duty of care is to their shareholders. The **pharmaceutical companies stand to make billions from government funding of WL medications**, however it is the **governments and the population who will be paying the price, for decades to come**, with **long-term health and economic costs** that will not be borne by the drug companies.
- **We implore the committee to advise the government in the strongest terms against endorsing the use of these WL medications in Wales.**

Prevention of ill health – Obesity

Additional evidence – Weight loss medications: A triumph of marketing over medical care

Authors

1. Dr Angela Meadows, bio as previously
2. Ragen Chastain, MEd, BCPA is a US-based speaker, writer, researcher, Board Certified Patient Advocate, multi-certified health and fitness professional, and thought leader in weight science, weight stigma, health, and healthcare. Author of the Weight and Healthcare newsletter, co-author of the Health at Every Size Health Sheets, and editor of the anthology The Politics of Size, Ragen is frequently featured as an expert in national and international print, radio, television, podcasts, and documentary film. She has worked with numerous organisations, including Memorial Sloan Kettering, Nationwide Children's Hospital, Amazon, Google, Dartmouth, Cal Tech, and the Yale School of Medicine. Ragen has been following the emergence of evidence around weight-loss medications in her Weight and Healthcare newsletter, written with an educated lay audience in mind. It includes accessible analyses of published journal articles, but also incorporates information from other sources. Access at: https://weightandhealthcare.substack.com

Both authors are submitting this evidence in an individual capacity. They confirm that they are over 18 years old. This evidence is not confidential, and their names can be published.

1. Effectiveness of WL medications for weight-loss

(a) Wegovy (semaglutide), Novo Nordisk

i. 2-year data, STEP 5 trial [1]: 152 participants were randomised to receive semaglutide 2.4mg injection weekly and 152 received a placebo. Both groups also received a lifestyle intervention. The first 16 weeks involved gradual titration of the dosage in four-week intervals, from a pre-therapeutic dose of 0.25mg to the therapeutic dose of 2.4mg.

ii. **After 2-years of treatment, only 73% of the 152 on-drug participants who started the trial had achieved at least 5% weight-loss from their starting point** (77.1% of those completing the study). In other words, over a quarter had failed to lose even 5%. 8% were no longer on the standard dose, needing to drop below the therapeutic dose for weight-loss due to side effects. A further 12% withdrew from the study, a majority due to side effects and safety concerns. Over a third of participants in the control group who completed the study lost at least 5% of their body weight.

iii. Note, the oft-reported **5% weight-loss goal is not based on any scientific evidence**. The number "needed for health benefits" has been revised downwards over the years in line with what studies have shown to be typical weight loss from an intentional weight-loss attempt. In the papers from the SELECT trial (see below), the authors list 10% as "clinically meaningful weight loss," again, without sound scientific evidence. **A review of studies that measures metabolic health outcomes following weight-loss identified no direct link** between amount of weight loss and blood pressure, lipids (triglycerides and cholesterol), or fasting blood glucose [2]. Where studies had included physical activity, **increased exercise levels seemed to be driving any health benefits.**

iv. Of the 144 participants in the medication group who completed the STEP 5 study, only 61.8% lost at least 10% of their body weight (i.e., nearly 40% failed to reach this marker after 2 years), and only 36.1% lost at least 20%. Across all participants, **weight-loss levelled off in the medication group at around 68 weeks** (one year on the full dosage, following 16-weeks gradual titration up to the therapeutic dose). **Over the next year, body weight remained the same or began to increase slightly**, at which point, monitoring ceased.

v. 4-year data, SELECT trial [3]: 17604 higher-weight participants with pre-existing cardiovascular disease were randomised to either 2.4 mg semaglutide or a placebo.

vi. **Steep weight loss was observed over the first 39 weeks, slowing after that, and levelling off at 65 weeks**. Notably, attrition was extremely high. **Of the 8,803 participants in the treatment group at**

baseline, 4-year data are based on only 921[1]patients – an 89.5% attrition rate. In line with other weight-loss studies, it is likely that participants with poorer results dropped out of the trial prematurely and that these long-term results based on only 10% of the starting pool massively over-represent the likelihood of successful weight maintenance. This is borne out by larger dropouts following slight increases in the study population body weight.

vii. Participants achieving at least 5% weight-loss is not reported at 4-years, but only at the 2-year point. At 2-years, only 67.8% (of those remaining) had achieved at least 5% weight-loss (i.e., one-third had not), and only 44.2% had achieved at least 10% weight-loss. Only 11% had achieved 20% weight-loss. Presumably, a notable proportion of the over 1300 participants who had dropped out of the trial group at this point had failed to lose weight or had begun to gain weight. As the numbers are similar across the medication and placebo groups, it is unlikely that adverse events were the main driver of the attrition rate. These levels of dropout are typical in weight-management studies. The body starts to resist efforts to restrict caloric intake through a series of mechanisms, collectively named 'adaptive thermogenesis' (see written evidence OB15 Sections v and vi). As weight-loss slows, stops, and ultimately rebounds, participants withdraw from the study rather than attend for follow-up appointments. Others may engage in 'crash dieting' to improve their numbers before scheduled appointments ([4]; see written evidence OB15 Sections iii and iv for further information on low success rates and manipulated trial data in published papers).

(b) Zepbound (tirzepatide), Eli Lilly

viii. 1-year data, SURMOUNT 1 [5]: 2539 'overweight' and 'obese' participants (study publication title only mentions 'obesity') received either 5mg, 10mg, or 15mg tirzepatide or a placebo. There was a 20-week dose-escalation period followed by 52 weeks at the target dose (slightly longer for lower dosages). In the three on-drug groups, steep weight loss was observed to 24 weeks, then slowing and levelling off at around 60 weeks.

ix. Approximately 15% in the three on-drug groups didn't complete the trial period. Between 10 and 15% of those completing the trial failed to lose even 5% of their body weight, whereas about one-third of those on placebo reached this arbitrary cut-off, 16 to 32% failed to lose even 10%, between 43 and 70% failed to lose 20% of their body weight, and only 15 to 36% lost 25% of their body weight. This includes lean mass (health-protective) as well as fat mass; on average 10.9% loss across the three groups, although this would likely be significantly higher in the higher-dose groups; fat mass vs lean mass loss was not in the paper but in the supplementary material.

x. 1-year data, SURMOUNT 2 [6]. Similar design to SURMOUNT-1 but participants had diabetes at start. Three groups (10mg, 15mg, placebo). At 72 weeks, 17 to 21% in on-drug groups failed to reach even 5% weight-loss; 35 to 40% failed to reach 10%; 79 to 82% failed to reach 20%. Weight-loss trajectory as in SURMOUNT-1.

xi. SURMOUNT-4 [7]: 783 participants received tirzepatide open-label for 36 weeks (i.e., everyone got the drug and knew they were getting it). At 36 weeks, 670 participants (85.6%) managed to attain the maximum tolerable dose of 10mg or 15mg of tirzepatide, despite side effects, and these were randomised double-blind to continue taking the drug or to a placebo and followed for a further 52 weeks, a total of 88 weeks. 113 (14.4%) discontinued the study drug before the end of the 36-week stage. A further 27.7% of the tirzepatide group had discontinued by 88 weeks.

---

[1] In my oral evidence, I stated that 4-year results included only 157 people. This was incorrect. At 208 weeks (4 years), 921 people remained in the treatment group, an 89.5% attrition rate. The subsequent and final data-point reported (Figure 1), at 221 weeks (i.e., approximately 3 months later), included just 157 people.

xii. The study claimed a mean weight loss of 25.4%. Of study participants who took the drug for the full 88 weeks, 2.7% failed to lose even 5% of their body weight, 7.9% failed to lose even 10%, 15.9% failed to lose 15% and 30.5% failed to lose 20%.

xiii. On average, **weight loss in the on-drug group leveled off at 64 weeks with a slight uptick at week 88**.

xiv. The study **defined "maintaining" weight loss as having regained less than 20% of the weight loss in the first 36 weeks over the next 52 weeks**. **10.5%** of the group who were **still taking the drug** during the **one-year follow-up** had **already gained back more than 20%** of the weight they lost in the first 36 weeks. **This information was not in the paper** but buried on page 19 of 27 in the Supplemental Information, not even directly following other efficacy data. Supplemental information is not subject to peer review.

xv. **A notable proportion of those labelled as "maintaining" weight loss were regaining** but hadn't yet reached 20% regain at 88 weeks. There is **no reason to believe that regain would not continue**.

xvi. No data are currently available beyond 1 year.

2. Effectiveness of WL medications for cardiovascular (CV) health

xvii. In August 2023, Novo Nordisk put out a **press release** claiming results of the **SELECT trial** showed Wegovy reduced the risk of major adverse cardiovascular events by 20% in adults with overweight or obesity. Their stock (and that of Eli Lilly) jumped 16% to an all-time high [8].

xviii. The study itself wasn't published until 4 months later. It became clear that the "20%" figure was **statistical bait and switch**: 8% of participants receiving placebo had one of three CV events (stroke, heart attack, or death from a CV event, compared with 6.5% in the Wegovy group – an absolute difference of 1.5% [9].

xix. The difference between the two groups pretty much only applied to middle-aged, lower-weight, white men. Further, it was **not statistically significant for women, Black people, Hispanic people, those under 55 or over 75, or those with a BMI above 35, the BMI-criteria for which the medication has been approved by NICE**.

xx. The **trial began with 8,803 in the treatment group** but ended with **only** 712 **(8.1%) remaining at 48 months**

xxi. **About 25% of people in the treatment group failed to maintain the 2.4mg dose** for the majority of the study, dose de-escalations spiked between 48 and 54 weeks, and about 5% never even made it off the sub-therapeutic 0.25mg dose.

xxii. **No cardiovascular trials have been published for tirzepatide in the general population**. The SURMOUNT-MMO trial, which looks at reductions in morbidity and mortality, is not due to be completed until late 2027 [10]. Secondary endpoints from weight-loss trials indicate improvements in cardiovascular markers for all doses (5mg, 10mg, 15mg; [5]); however the 5-mg dose was dropped from later trials, despite equivalent cardiovascular benefits with fewer side effects, perhaps because this would dilute the apparent weight-loss effect. As these were not primary endpoints, no information is available about trajectory of changes.

3. Side effects of WL medications

xxiii. Semaglutide is marketed under the name Ozempic for diabetes. Patients initially receive a sub-therapeutic dose (0.25mg), and are then titrated up to 0.5mg after four weeks. If glycaemic control is achieved, this dose is continued; if not, the dose can be escalated every four weeks until the desired control or maximum dose is reached. Until 2022, the maximum safe dose was 1mg. This was increased to 2mg in the US in March 28, 2022. **In Europe, the maximum dose at time of writing remains 1mg** [11].

Prevention of ill health – Obesity

Additional evidence – Weight loss medications: A triumph of marketing over medical care

xxiv. Semaglutide is marketed under the name Wegovy for weight-loss. The dose for weight-loss is 2.4mg, above the maximum recommended human dose from trials of Ozempic [11, 12]. The goal is to maximise the side effects of semaglutide, of which weight-loss is one.

xxv. Common side effects of semaglutide include nausea, diarrhoea, vomiting, constipation, dizziness, abdominal pain, dyspepsia, and gastroesophageal reflux. These tend to be worse on starting the drug but do not go away – participants simply put up with them because of the perceived benefits.

xxvi. Severe side effects include acute pancreatitis, acute gallbladder disease, acute kidney injury, complications of diabetic retinopathy, suicidal ideation and suicidal behaviour, and ileus (when the natural peristalsis that moves food through the gut ceases completely – i.e., the intestinal tract is paralysed). At least one patient, currently suing Novo Nordisk, had to have a large portion of her colon removed and now requires an ostomy bag [13].

xxvii. Because of their mechanism of action on the gut, the drugs can interfere with the absorption of other medications. These include those that require a particular blood concentration to be effective, such as seizure medications, psychotropic medications, blood pressure medication, ADHD medication, and oral contraceptives. Notably, the weight-loss drugs may also harm a growing fetus and due to the long half-life (the time it takes for the drug to leave the system), it is recommended that patients stop taking the drug at least two months prior to a planned pregnancy. This will obviously not be possible if a pregnancy is unplanned. Implications for health, long-term care, and cost to the NHS are significant.

xxviii. There is also potential impact on medications that only have a narrow therapeutic window, meaning that they are ineffective at lower levels but become toxic at higher levels. These include, but are not limited to, warfarin (a blood thinner), lithium, selective serotonergic reuptake inhibitors (for depression), anti-psychotic drugs, and heart medications (e.g., digoxin).

xxix. Semaglutide has a boxed warning (FDA's most serious) for thyroid cancer risk.

xxx. Additionally, loss of appetite over a prolonged period can result in malnutrition, with the serious health consequences that can bring, as well as an increased risk of eating disorders [14, 15]. Note, anorexia nervosa has the highest mortality rate of any psychiatric illness. It is just as dangerous in high-weight as in under-weight individuals [16].

xxxi. Zepbound has a very similar side effect profile, including the boxed warning [17]. While maximum dosage for weight-loss is the same as for the diabetes drug (Mounjaro), the goal of tirzepatide for diabetes is to maximise glycaemic control while minimizing side effects, aiming for the lowest dose possible. When used for weight-loss (Zepbound), the goal is to maximise side-effects (including weight loss). Later trials only used the two highest dosages (10mg and 15mg), despite similar cardiovascular benefits being seen with 5mg and with fewer side effects.

xxxii. At the time of writing, US data indicate that tirzepatide has been linked with over 47,000 adverse events, 4,900 serious adverse events, and 172 deaths. Semaglutide has been linked with over 37,000 adverse events, 16,600 serious adverse events, and 505 deaths [18]. This class of drugs already have more deaths associated with them than previous weight-loss medications did at the time they were withdrawn for safety concerns. Note, these data are from the FDA Adverse Event Reporting System and are for the US only.

xxxiii. Thus, complications of taking weight-loss medications may be life-limiting or even life-threatening. More serious side effects may not disappear on cessation of the medicine and long-term complications are likely to have severe impact on health and quality of life, as well as being extremely costly for the NHS.

xxxiv. It should be noted that several previously approved WL medications had to be withdrawn as the long-term severe adverse effects and increased risk of fatalities only became apparent after introduction to market [19].

Prevention of ill health – Obesity

Additional evidence – Weight loss medications: A triumph of marketing over medical care

4. Withdrawal effects

xxxv. **Wegovy** (semaglutide): After 1 year of treatment, the STEP 1 extension study explored the impact of drug withdrawal in a subset of 228 participants [20]. **Extremely rapid weight regain** was observed immediately on stopping the medication and was **still increasing at 1-year**, when monitoring ceased. The effects were steepest for those who had lost the most weight initially.

xxxvi. Cardiovascular benefits (blood pressure, blood glucose, lipid levels, and systemic inflammation) were already **dissipating** and returning to baseline **prior to stopping medication**, and continued to rise steeply until monitoring ceased.

xxxvii. **Zepbound** (Tirzepatide): After 36 weeks of treatment, the SURMOUNT-4 trial explored the impact of drug withdrawal in a subset of 335 participants [7]. **Extremely rapid weight regain** was observed immediately on stopping the medication and was steadily rising at 1-year when monitoring ceased. **Cardiovascular benefits were also rapidly reversed**, and in the case of cholesterol, rebounded above starting levels at week 88; this information was in the supplementary material.

5. Conflicts of interest of proponents of WL medications

Authors of published studies of WL medications (non-exhaustive examples)

xxxviii. The SURMOUNT-4 trial [7] was funded by drug manufacturer Eli Lilly. **Ten of the twelve listed authors disclosed either financial entanglements with, or employment by, Eli Lilly.** One of the two authors who did not include employment in the disclosures is listed under author affiliations as "Eli Lilly and Company, Moscow, Russia."

xxxix. SELECT trial [9] was funded by Novo Nordisk. **Every listed author had either taken money from, was contracted by, or is a direct employee of Novo Nordisk.** The six authors who are **US-based doctors** (for whom data is available on openpayments.data.gov) had **collectively accepted over $7.5 million from Novo Nordisk as of 2023**.

xl. SELECT trial [3] was funded by Novo Nordisk. The **vast majority of authors** disclosed **financial entanglements with, or employment by, the study funder**. The **eight US-based doctors** (for whom data are available on openpayments.data.gov) had collectively **accepted over $11.5 million** from Novo Nordisk.

Researchers, clinicians, and 'patient groups' promoting WL medications

xli. Morgan Stanley has estimated that the **weight-loss drug market will be worth up to £45 billion in the next decade**. As a result, **pharmaceutical companies have spent hundreds of millions seeking to influence the narrative around 'obesity' in the lead up to seeking approval** for government funding. Novo Nordisk, in particular, has **invested heavily in creating networks of academic researchers and authors, forming astroturf organisations and lobbying bodies, and creating 'patient groups' to deliver their key messaging** [21]. At the 2018 European Congress on Obesity, Obesity Canada representatives described training patient advocates to speak to the press, stating proudly that "every patient who is being interviewed in Canada right now will say obesity is a chronic disease. In every single interview. 20 times." [22]. For a detailed exploration of this strategy as implemented in Canada, and how this **influenced** the new Canadian Adult Obesity **Clinical Practice Guidelines** (now used as basis for guidelines in other countries), see [23].

xlii. In an article in the Observer titled "'Orchestrated PR campaign': how skinny jab drug firm sought to shape obesity debate" [21], **investigative journalists uncovered that in three years leading up to the approval of Wegovy for use in the NHS, Novo Nordisk had paid out nearly £22 million in the UK alone, in 3,500**

transactions including "donations, event sponsorship, grants and other fees to prominent obesity charities, NHS trusts, royal colleges, GP surgeries, healthcare education providers and universities... A further £4m in payments such as consulting and lecture fees went to health professionals, including experts on obesity." This amount was separate from, and almost equal to, the £28 million they spent on research and development in the UK.

xliii. Novo Nordisk also sponsored the all-party parliamentary group on obesity that advises the government on health policy. [21]

xliv. The decision by NICE to approve Wegovy for individuals with a BMI above 35[2] was made after hearing evidence from a number of individuals, all of whom were nominated either by Novo Nordisk or by Obesity UK, a charity funded by Novo [24]. The clinicians nominated by Novo have previously received funding from the company [25]. Disclosure of this funding does not seem to be required in the submission forms. Similar conflicts of interest were present in the hearings for tirzepatide [10, 25].

xlv. Prominent obesity researchers and clinicians have been cited in the media expounding on the benefits of the recent crop of weight-loss medications; their financial ties to the manufacturers of these drugs are not disclosed in these articles. For example:

- John Wilding, University of Liverpool, who provided evidence to NICE, has been quoted extensively in the media recommending Novo Nordisk's weight loss drug Wegovy. He also serves as president of the "World Obesity Federation" which took more than £4.3M over three years. According to Disclosure UK, he has also personally declared over £12,000 from Novo Nordisk in the last three years for conference registration, travel, accommodation, and contract fees [25].
- Carel Le Roux, Ulster University, who provided evidence to NICE, has also been cited frequently in news stories. He has declared over £60,000 from Novo Nordisk in the last three years [25].
- Jason Halford, University of Leeds, told an audience of millions on the Today programme on BBC Radio 4 that Wegovy is "one of the most powerful pharmaceutical tools" for treating "obesity." It was not disclosed that he is the president of the European Association for the Study of Obesity (EASO) or that EASO receives more than three-quarters of its income (more than £3.65m) from Novo Nordisk. Also not disclosed was that Halford is also a previous member of Novo Nordisk's UK advisory board. He has personally declared nearly £9,000 from Novo Nordisk in the last three years [25].
- Prof Barbara McGowan, KCL, is another prominent proponent. She is a trustee of the Association for the Study of Obesity, another astroturf organisation that in the last 3 years has received over 70% of its funding from the pharmaceutical industry [26]. She has personally declared over £35,000 from Novo Nordisk in the last three years and over £9,000 from Eli Lilly [25].

Misconduct in marketing of WL medications

xlvi. Novo Nordisk was sanctioned by the Association of the British Pharmaceutical Industry (APBI) for deceptive trade practices involving drug education for weight-loss drug Saxenda (liraglutide) provided by healthcare providers with potential impact on patient safety [27]. After Novo appealed on the basis that they didn't know this was a breach of APBI code, the APBI issued a public reprimand. Although a majority of the ABPI board wanted to suspend Novo, this did not reach the 75% agreement cut-off. An audit was requested and determined that Novo Nordisk's actions were "likely to bring discredit on, or reduce confidence in, the pharmaceutical industry" and Novo Nordisk was suspended from the ABPI for two years.

[2] Later published findings from the SELECT trial indicate no cardiovascular benefits in this population compared with placebo.

Prevention of ill health – Obesity

Additional evidence – Weight loss medications: A triumph of marketing over medical care

xlvii. Recently, questions have been raised about the ethicality of Novo Nordisk **sponsoring British pharmacies**, including Boots and Lloyds, **to advertise weight-loss services**, and received detailed marketing information in return [28] They also sponsored online pharmacies who then illegally advertised the prescription-only weight-loss medications directly to the public [28].

xlviii. **Liraglutide** (sold as Victoza for diabetes and Saxenda for weight loss), a similar drug to semaglutide (Wegovy) was approved in the US in 2010. **Despite the requirement from the FDA, Novo Nordisk sales representatives were told to downplay the risk of thyroid cancer, saying the FDA warning was not significant or an error, and received training to this effect**. Further attempts by the FDA to increase risk awareness were thwarted by the company, including by direct instruction from Novo's VP Marketing. The government **fined Novo $58.65 million** for violations of the False Claim Act and the Food, Drug and Cosmetics Act, and claimed that the **company was putting the health of vulnerable people at risk**. Novo Nordisk deny any wrongdoing and prescriptions for Victoza generated over $1 billion in sales that year [29].

Prevention of ill health – Obesity

Additional evidence – Weight loss medications: A triumph of marketing over medical care

References

1. Garvey et al. (2022). Two-year effects of semaglutide in adults with overweight or obesity: The STEP 5 trial. *Nature Medicine*, *28*, 2083–2091. https://doi.org/10.1038/s41591-022-02026-4
2. Tomiyama et al. (2013). Long-term effects of dieting: Is weight loss related to health? Social and Personality Psychology Compass, *7*(12), 861–877. https://doi.org/10.1111/spc3.12076
3. Ryan et al. (2024). Long-term weight loss effects of semaglutide in obesity without diabetes in the SELECT trial. *Nature Medicine*, *30*, 2049–2057. https://doi.org/10.1038/s41591-024-02996-7
4. Mann et al. (2007). Medicare's search for effective obesity treatments. *American Psychologist*, *62*, 220–233. https://doi.org/10.1037/0003-066X.62.3.220
5. Jastreboff et al. (2022). Tirzepatide once weekly for the treatment of obesity. *New England Journal of Medicine*, *387*(3), 205–216. https://doi.org/ 10.1056/NEJMoa2206038
6. Garvey et al. (2023). Tirzepatide once weekly for the treatment of obesity in people with type 2 diabetes (SURMOUNT-2): A double-blind, randomised, multicentre, placebo-controlled, phase 3 trial. *Lancet*, *402*(10402), 613–626. https://doi.org/10.1016/S0140-6736(23)01200-X
7. Aronne et al. (2024). Continued treatment with tirzepatide for maintenance of weight reduction in adults with obesity. The SURMOUNT-4 randomized clinical trial. *Journal of the American Medical Association*, *331*(1), 38–48. https://doi.org/10.1001/jama.2023.24945
8. Kuchler & Smyth (2023). *Novo Nordisk's obesity drug cuts risk of strokes and heart attacks Shares in Danish drugmaker and US rival Eli Lilly surge to record highs after positive trial of weight-loss drug*. Financial Times. https://www.ft.com/content/b8617703-2608-4d2e-8d39-6d4ab1176ffd
9. Lincoff et al. (2023). Semaglutide and cardiovascular outcomes in obesity without diabetes. *New England Journal of Medicine*, *389*(24), 2221–2232. https://doi.org/10.1056/NEJMoa2307563
10. NICE (2024). *Tirzepatide for managing overweight and obesity. Technology appraisal guidance (TA1026).* Committee Papers. https://www.nice.org.uk/guidance/ta1026/evidence
11. European Medicines Agency (2024). European Public Assessment Report – Ozempic. https://www.ema.europa.eu/en/medicines/human/EPAR/ozempic/
12. US Food and Drug Administration. *Ozempic prescribing information.* https://www.accessdata.fda.gov/drugsatfda_docs/label/2024/209637s032lbl.pdf
13. Chastain (2024, Oct 19). *Weight loss drug manufacturers sued, part 2*. Weight and Healthcare newsletter. https://weightandhealthcare.substack.com/p/draft-weight-loss-drug-manufacturers
14. Chastain (2024, Aug 24). *Are GLP-1 drugs causing eating disorders, part 1*. Weight and Healthcare newsletter. https://weightandhealthcare.substack.com/p/are-glp-1-drugs-causing-eating-disorders
15. Chastain (2024, Aug 28). *Are GLP-1 drugs causing eating disorders, part 2*. Weight and Healthcare newsletter. https://weightandhealthcare.substack.com/p/glp-1s-and-eating-disorders-part
16. Moskowitz & Weiselberg (2017). Anorexia nervosa/Atypical anorexia nervosa. *Current Problems in Pediatric and Adolescent Healthcare*, *47*(4), 70–84. https://doi.org/10.1016/j.cppeds.2017.02.003
17. US Food and Drug Administration (FDA; 2024b). *Tirzepatide prescribing information.* https://www.accessdata.fda.gov/drugsatfda_docs/label/2024/217806s005s006s011s015s019lbl.pdf
18. US Food & Drug Administration (2024). *FDA Adverse Event Reporting System.* https://www.fda.gov/drugs/fdas-adverse-event-reporting-system-faers/fda-adverse-event-reporting-system-faers-public-dashboard
19. Chastain (2022, Aug 10). *Weight loss drugs – A long line of losers Part 1 Fen-Phen and Belviq*. https://weightandhealthcare.substack.com/p/weight-loss-drugs-a-long-line-of

Prevention of ill health – Obesity

Additional evidence – Weight loss medications: A triumph of marketing over medical care

20. Wilding et al. (2022). Weight regain and cardiometabolic effects after withdrawal of semaglutide: The STEP 1 trial extension. *Diabetes Obesity and Metabolism*, *24*(8):1553–1564. https://doi.org/10.1111/dom.14725

21. Das & Ungoed-Thomas (2023, Mar 12). '*Orchestrated PR campaign': How skinny jab drug firm sought to shape obesity debate.* The Observer. https://www.theguardian.com/society/2023/mar/12/orchestrated-pr-campaign-how-skinny-jab-drug-firm-sought-to-shape-obesity-debate
22. European Coalition for People Living with Obesity (2023). *Empowerment, advocacy, and media training*. https://eurobesity.org/empowerment-advocacy-media-training/
23. Bombak et al. (2022). Drivers of medicalization in the Canadian Adult Obesity Clinical Practice Guidelines. *Canadian Journal of Public Health*, *113*, 743–748. https://doi.org/10.17269/s41997-022-00662-4
24. NICE (2023). *Semgalutide for managing overweight and obesity. Technology appraisal guidance (TA875).* Committee Papers. https://www.nice.org.uk/guidance/TA875/evidence
25. Disclosure UK (2024). *Association of British Pharmaceutical Industry Disclosure UK database*. https://search.disclosureuk.org.uk/
26. Charity Commission (2024). Association for the Study of Obesity – Annual Returns. https://register-of-charities.charitycommission.gov.uk/en/charity-search/-/charity-details/4002116/accounts-and-annual-returns
27. Prescription Medicines Code of Practice Authority (PMCPA; 2021). AUTH/3525/6/21- Complainant v Novo Nordisk. *Concerns about sponsored courses offered on LinkedIn.* https://www.pmcpa.org.uk/cases/completed-cases/auth3525621-complainant-v-novo-nordisk
28. Das (2025, Jan 4). Wegovy maker Novo Nordisk sponsored British pharmacies in pursuit of sales. https://www.theguardian.com/business/2025/jan/04/wegovy-maker-novo-nordisk-sponsored-british-pharmacies-in-pursuit-of-sales
29. Mercedes (2021). Wegovy isn't a "game changer", but an update. https://www.marquiselemercedes.com/read/wegovy