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ORIGINAL ARTICLE

The ethics of wegovy for children: the argument from too many unknowns

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Abstract
Semaglutide, a glucagon-like peptide-1 receptor agonist (GLP-1 RA) marketed as Wegovy, has gained international attention for its appetite-suppressing and weight-loss effects. Approved by the U.S. FDA in 2022 for paediatric use in children aged 12 and older, Wegovy has since received similar approvals in several countries. Despite this, uptake among youth has been limited. While some clinicians advocate for broader paediatric use of Wegovy as an underutilised tool to address obesity, others urge caution citing concerns regarding its long-term safety, efficacy, and appropriateness in growing children. When prescribing medication to children there are many ethical dimensions to consider. This paper focuses on the risks, side-effects, and unknowns of Wegovy as a barrier to use in paediatric care. We argue that, while long-term effects remain uncertain, this uncertainty alone should not preclude its use in children.

Keywords Semaglutide · Paediatric obesity · Ethics · Clinical practice · Off-label

1 Introduction

Novo Nordisk's latest glucagon-like peptide-1 receptor agonist (GLP-1 RA), semaglutide, is one of the most talked-about pharmaceuticals on the market. While primarily used to treat type 2 diabetes, semaglutide has gained widespread attention for its significant impact on appetite suppression and weight loss, with some hailing it as a

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"miracle drug." Marketed as Ozempic, Rybelsus, and Wegovy, it has been approved for adults in numerous countries, including the United States, United Kingdom, and much of the European Union. To date, however, only Wegovy has been authorized for paediatric use to treat childhood obesity.

Paediatric uptake of Wegovy has been slow compared to adults. In the United States, although 14.7 million children have obesity, only 464 children were prescribed Wegovy across five states, including Michigan, Minnesota and Wisconsin since the drug's approval in January 2022 (Respuat and Terhune 2024). Some commentators argue for greater caution when prescribing semaglutide to children due to limited long-term safety and efficacy data. Dr. Dan Cooper, professor of paediatrics at UC Irvine, notes that, "We don't really know what these medications do in the context of the growing child" (Respuat and Terhune 2024). Tamara Hannon, a paediatric endocrinologist at Indiana University, adds, "Although adults face many of the same unknowns, the risks for teens could be more severe because of their physiological pubertal development" (Tayag 2023). Others argue that Wegovy is underutilized. Dr. Suzanne Cuda, director of Alamo City Healthy Kids and Families, says, "I use these medications wherever I can. Unlike with adults, where it's like a rescue operation, we are much more likely with children and adolescents to prevent disease" (Respuat and Terhune 2024). Fatima Cody Stanford, obesity specialist at Harvard Medical School, also argues that early, aggressive weight-loss treatment, "could possibly reroute the trajectory of a teenager's entire life…" (Tayag 2023).

When prescribing medication to children, several ethical considerations arise. These include the medication's safety—including risks, side effects, and unknowns—its effectiveness in meeting the health goals of the child and family, and its alignment with broader social and healthcare interests.

This paper focuses on one dimension: the risks, side-effects, and unknowns of Wegovy as a barrier to use in paediatric care. We argue that, while long-term effects remain uncertain, this uncertainty alone should not preclude its use in children.

We begin discussing Wegovy's function and efficacy for weight loss in children. We then consider the argument that it should be prescribed to improve children's current health and prevent poor health conditions from developing, including adult obesity. We bring this argument into conversation with the objection that there are 'too many unknowns' regarding the long-term risks and side-effects of Wegovy for children.

For the purposes of this paper, we will focus on children aged 12 years and older, as this is the approved age group for Wegovy in countries where it has been authorized for paediatric use. We use the terms 'youth' and 'adolescent' to refer to those aged 12 to 18.

2 The Science + Potential

According to Novo Nordisk, Wegovy is for "adults and children aged 12 and older with obesity, or some adults with overweight who also have weight-related medical problems, to help them lose excess body weight and keep the weight off" (Novo Nordisk 2024). For youth over 12, Wegovy is taken as a weekly single-dose injection,

starting at 0.25 mg for the first four weeks and increasing to a 2.4 mg maintenance dose.

Semaglutide promotes weight loss by suppressing appetite. It does so by slowing gastric emptying and interacting with brain regions that signal hunger and satiation. How it affects brain chemistry, however, remains unclear. Some suggest that, because GLP-1 RAs have been engineered to last longer in the blood, they may cross the blood-brain barrier and access deep brain regions (Zhang 2024). Evidence for this, however, is both weak and speculative. There is evidence that semaglutide has an effect on the brain stem, septal nucleus and hypothalamus (Gabery et al. 2020). In these cases, the GLP-1 RA interacts with the brain through circumventricular organs and sites adjacent to the ventricles—sites that monitor and respond to blood composition. The role and significance of this interaction also remain unclear.

The results of semaglutide use for weight loss in children have been significant. In a 68-week randomized controlled trial (STEP TEENS) of 180 participants, those taking Wegovy lost an average of 16.1%, compared to 0.6% in the placebo group (Weghuber et al. 2022). Participants were aged 12 to <18 years with "obesity (a body-mass index [BMI] in the 95th percentile or higher) or overweight (a BMI in the 85th percentile or higher) and at least one weight-related coexisting condition" (Weghuber et al. 2022). All participants received either Wegovy or a placebo alongside counselling on nutrition and a prescribed goal of 60 min of moderate to high-intensity physical activity per day. An analysis by Kelly et al. (2023) showed that 44% of those taking Wegovy "achieved weight reduction resulting in reclassification to a normal-weight or overweight BMI category versus 12.1% receiving placebo at week 68." In addition to weight loss, semaglutide has also been shown to improve cardiometabolic risk factors in both childhood and adulthood (Weghuber et al. 2022: 2255).

Known side effects of Wegovy include nausea, vomiting, diarrhea, abdominal pain, bloating, constipation, headaches, and weakness during exercise. In the STEP TEENS trial, the most common adverse effects were mild or moderate nausea, vomiting, and diarrhea, occurring in 62% of the semaglutide group and 42% of the placebo group (Weghuber et al. 2022: 2245). Serious side effects were reported in 11% of those on semaglutide. Psychiatric adverse events were reported in 7% of the semaglutide group, compared to 15% in the placebo group (Weghuber et al. 2022: 2243). More serious but rare side effects have been documented in adult trials and include gastroparesis (stomach paralysis), and anhedonia (depression). Potential long-term risks include a heightened risk of thyroid C-cell tumours (adenomas and carcinomas), pancreatitis, kidney failure, gallbladder disease, diabetic retinopathy, and weight gain (Suran 2023; Llamas 2024).

Without proper nutritional support, Wegovy-induced calorie reduction may also lead to malnutrition from inadequate nutrient intake (Miller 2024). Similarly, Fallows et al. (2023) warn that reduced energy intake could worsen conditions like sarcopenia, micronutrient deficiencies, and microbiome disruptions if essential nutrients are not maintained.

3 The positive case for wegovy: improved physical and mental health

Despite the noted risks, one of the strongest arguments for paediatric use of Wegovy, and the focus here, is that it can improve children's health and help prevent future conditions, including adult obesity.

In the clinical practice guidelines for the evaluation and treatment of children and adolescents with obesity released in 2023, the American Academy of Pediatrics (AAP) endorses the use GLP-1 RAs, including Wegovy for paediatric use. The AAP argues that

> "Obesity puts children and adolescents at risk for serious short- and long-term adverse health outcomes later in life, including cardiovascular disease, including HTN [hypertension]; dyslipidemia; insulin resistance; T2DM [type 2 diabetes mellitus]; and nonalcoholic fatty liver disease (NAFLD). Additionally, prediabetes in youth with obesity, compared with youth with normal weight, has been associated with elevated systolic blood pressure and low-density lipoprotein, and lower insulin sensitivity" (Hampl et al. 2023:12).

As such, the AAP argues that obesity must be addressed early and aggressively to prevent disease and adult obesity. If untreated, the condition can escalate and become chronic in adulthood (Hampl et al. 2023). This aligns with a meta-analysis by Simmonds et al. (2016), which found that obese children and adolescents were five times more likely to be obese adults than their non-obese peers.

As described above, the STEP TEENS trial showed that Wegovy significantly reduced children's BMI when combined with nutrition and exercise. It also improved several health-risk indicators outlined by the AAP. The study found that "glycated hemoglobin (excluding participants with type 2 diabetes), total cholesterol, LDL, VLDL, triglycerides, and ALT levels were lower with semaglutide than placebo" (Weghuber et al. 2022: 2251). For example, total cholesterol dropped by 8.3 mm Hg with semaglutide vs. 1.3% with placebo; glycated hemoglobin by 0.4% vs. 0.1%; systolic blood pressure by 2.7 mm Hg vs. 0.8; and diastolic pressure by 1.4 mm Hg vs. 0.8. Weghuber et al. (2022: 2255) deem these results clinically relevant, as these markers are childhood risk factors for cardiovascular events in adulthood. Higher cholesterol and triglyceride levels are also linked to nonalcoholic fatty liver disease in children.

In addition to physical health benefits, some argue that Wegovy should be prescribed to children to improve their mental health (Tayag 2023). As we have argued elsewhere, weight stigma—that is "the social rejection and devaluation of persons who do not conform to prevailing norms of body weight and shape"—is widespread in youth across sociodemographic groups (Tomiyama et al. 2018; Ryan and Savulescu Forthcoming). Fat and obese children often experience weight stigma in the form of bullying, exclusion, and unfair treatment, from peers, teachers, and even parents (Puhl et al. 2013; Puhl et al. 2013; Puhl and Lessard 2020). Weight stigma is also linked to poor mental health outcomes for children. By reducing a child's weight

which is the feature that makes them a target of stigma, Wegovy then has the potential to improve children's mental health (Pont et al. 2017).

4 The case against wegovy: too many unknowns

4.1 Wegovy: the unknowns

While the clinical trials of Wegovy for children's health are very encouraging, there are many 'unknowns' surrounding the risks and efficacy of Wegovy in children.

The first unknown concerns Wegovy's long-term physical health benefits. To date, only two studies have examined Wegovy in children, the longest extending just 68 weeks. Many of the conditions that Wegovy is intended to mitigate—such as cardiovascular disease and fatty liver disease—develop later in life, meaning that long-term outcome data are not yet available. Thus, while paediatric trials show improvements, these reflect changes in risk factors for future disease and adult obesity rather than demonstrated, durable health benefits. Whether such short-term improvements translate into meaningful health outcomes in later life is unknown. The length of the studies also means that the more serious and long-term risks of children taking semaglutide—including the impact on their physical development—are currently unknown.

Another source of uncertainty concerns how health indicators are measured in the clinical trials. In the Wegovy trials, reductions in BMI serve as primary markers of improved health. However, as Couzin-Frankel (2021) notes, poor health outcomes correlate more with visceral adipose tissue (VAT) than with overall obesity. Unlike subcutaneous fat, VAT "generates inflammatory molecules, and imaging studies have shown it's associated with fat build-up in the liver, pancreas, and muscle" (Couzin-Frankel 2021). Paediatric Wegovy studies track BMI, but not VAT. Although emerging evidence suggests semaglutide reduces VAT in adults—for example, in a 68-week randomized trial (STEP 1), adults receiving semaglutide lost 15.0% of body weight, 19.3% of total fat mass, and 27.4% of visceral fat, compared with markedly smaller reductions in the placebo group (Wilding et al. 2021)—these findings remain inconclusive. Long-term fat distribution in adults is still uncertain, and paediatric outcomes cannot be reliably inferred from adult data.

As we mentioned earlier, there is also much that is unknown about the mode of action of Wegovy in terms of how it interacts with the brain and the rest of the body, and what the long-term implications are for children's development. Beyond slowing gastric emptying, there is some evidence to suggest that Wegovy also manipulates taste preferences in ways that support weight loss and health improvement. For example, in a clinical trial investigating semaglutide's effect on eating behaviour and glycaemic regulation, Masaki and colleagues reported improved control over eating, including reduced consumption of high-fat foods (Masaki et al. 2022). Additional studies have reached comparable conclusions, noting decreases in both the intake of and desire for high-fat foods relative to baseline measures (Radkhah et al. 2025). Bettadapura et al. (2025) observed a shift in dietary patterns, with participants deriving a smaller share of their total caloric intake from high-fat sources. Whether these

shifts in food preference stem from the pharmacological effects of Wegovy itself or arise from features of study participation remains unclear. What is clear, however, is that the underlying mechanisms driving these behavioural changes are still poorly understood.

Evidence on Wegovy's mental health effects in children is also poorly understood. As we have argued elsewhere, studies examining GLP-1 RAs and mental health use varied methods and have produced inconsistent results, offering no cohesive—let alone conclusive—understanding of their psychological impact (Ryan and Savulescu Forthcoming).

In addition to these clinical unknowns, there is also a collection of wider social risks. Wegovy's high cost and limited public provision risk restricting access to affluent families, exacerbating health inequities and reinforcing class-, race- and gender-based stigma (Ryan 2025a, b, c). Ongoing shortages and regulatory constraints may lead to treatment interruptions, increasing risks of weight regain and harmful weight cycling that is damaging to physical and mental health (Mauldin et al. 2022; Henke 2025). Social stigma may also worsen: if obesity comes to be seen as easily treatable, children who remain overweight may face harsher judgment (e.g., "there is no excuse for obesity") (Oswald 2024). Given adolescents' vulnerability to body-image pressures and eating disorders, Wegovy may increase the risk of therapeutic misuse and disordered eating (Cooper et al. 2023). There is also concern about the potential long-term impact on children's lifestyle behaviours. The worry is that if clinicians and families increasingly opt for medical intervention over traditional lifestyle approaches, children may be set on a path of lifelong medical dependence, narrowing their future autonomy and constraining their capacity to live well. To date, however, no studies have documented Wegovy's impact on children's lifestyle habits, including changes in diet or physical activity.

We have written at length elsewhere about the broader social concerns surrounding the use of Wegovy in children, particularly those relating to mental health, stigmatisation, lifestyle habits, and autonomy (Ryan and Savulescu 2025b; Ryan and Savulescu Forthcoming). Accordingly, for the remainder of this paper, our attention turns to the clinical unknowns and the extent to which they generate distinct ethical concerns for prescribing Wegovy to children.

4.2 Wegovy, off-labelling and unknowns

There remain significant clinical unknowns regarding Wegovy's risks and efficacy in children—an issue that forms the basis of one of the principal objections to its paediatric use. The question, however, is whether this uncertainty is sufficient to justify prohibiting its use outright.

Risks and unknowns in paediatric care are common and are generally not seen as obstacles to prescribing. "Off-label" prescribing, for example, is the practice of prescribing medications for uses, age groups, dosages, or methods of administration that have not been approved by regulatory authorities. Compared to medications that have been authorized for adult use, far fewer have been licensed for paediatric care. This is because far fewer medications have undergone clinical trials to assess their effectiveness and safety in children compared to adults. Despite these unknowns, off-

labelling is widespread in paediatric care and, as Petkova et al. (2023) explain, it is "generally legal unless [it] violates ethical guidelines or safety regulations (Petkova et al. 2023). Given that this is the case, it is evident that "unknowns" alone are not definitive barriers to treatment in paediatric care.

4.3 Wegovy and too many unknowns?

A potential barrier to treatment is the presence *of too many* unknowns—where the level of uncertainty poses risks deemed unacceptable. This is the most common criticism of prescribing Wegovy to children. However, unlike many off-label medications, Wegovy has undergone clinical trials—though short-term—assessing its safety and efficacy in children. Thus, Wegovy has *more* clinically documented data than medications used off-label. Unlike off-label medications, Wegovy has also met the regulatory approval requirements for paediatric use in many countries, with regulatory bodies having evaluated the quality and findings of the studies and deemed the available evidence sufficient for approval.

Many off-label medications prescribed to children have an advantage over Wegovy in that they may be supported by long-term studies in adults and observational data in children, which inform risk assessments. Databases like the FDA Adverse Event Reporting System (FAERS) track the effects of off-label paediatric prescriptions. Long-term data is especially important when weighing unknowns—yet, as noted, there is currently no clinical or observational data on Wegovy's long-term effects. However, not all off-label prescriptions require long-term data in children or adults to meet ethical or regulatory standards. As Meng et al. (2022: 7) explain, "the majority of clinical decisions are based on the principles of evidence-based medicine. However, in many cases, only low-quality evidence or evidence from adult populations is available to inform the treatment of children." Such cases include newly approved medications, early responses to public health emergencies, psychiatric treatment, and rare diseases (Meng et al. 2022: 8). If off-label medications are allowed to be prescribed without long-term data when they are newly approved, this suggests that the absence of long-term data for Wegovy should also not be prohibitive.

4.4 Wegovy and off-labelling: better alternatives

Another consideration here is that in many cases off-label prescribing occurs because there are no better alternative treatments—as with rare diseases in children. In the case of obesity-related health issues, several alternatives to Wegovy exist, including lifestyle interventions (exercise and diet), other GLP-1 receptor agonists, and bariatric surgery. None of these alternatives, however, have lower risk profiles while promising the same health benefit.

Daily exercise and nutrition-focused diets alone are typically less effective than when combined with Wegovy, as shown in the STEP TEENS trial. As a reminder, among 180 participants, those taking Wegovy lost an average of 16.1%, compared to 0.6% in the placebo group. Both groups received counselling on nutrition and a goal of 60 min of moderate to high-intensity activity per day. If BMI is accepted—even crudely—as a health risk indicator, the results clearly fall in favour of Wegovy.

Table 1 Wegvoy with diet and exercise compared to diet and exercise alone (STEP TEENS)

Intervention	BMI Change (%)	Total Cholesterol Reduction (percentage change in lipid levels)	Systolic Blood Pressure Reduction (mm Hg)	Diastolic Blood Pressure Reduction (mm Hg)	Change in glycated haemoglobin level (%)
Wegovy + Exercise + Nutrition*	−16.1%	−8.3%	−2.7	−1.4	−0.4
Placebo + Exercise + Nutrition*	−0.6%	−1.3%	−0.8	−0.8	−0.1

*Participants received counselling on healthy nutrition and a goal of 60 min of moderate to high intensity physical activity per day

Table 2 Wegvoy compared to liraglutide (STEP 8)*

Intervention	BMI Change (%)	Total Cholesterol Reduction	Systolic Blood Pressure Reduction (mm Hg)	Diastolic Blood Pressure Reduction (mm Hg)	Changes in glycated haemoglobin level (%)
Wegovy (Semaglutide)	−15.8%	−7.1%	−5.7	−5.0	−0.2
Liraglutide	−6.4%	−0.1%	−2.9	−0.5	−0.1

*Participants received counselling on healthy nutrition every 4–6 weeks, were instructed to adhere to a 500-kcal/d deficit and had a goal of ≥ 150/week

Health-risk indicators also appear to fall in Wegovy's favour: total cholesterol dropped by 8.3% with Wegovy vs. 1.3% with placebo; systolic blood pressure by 2.7 mm Hg vs. 0.8; diastolic by 1.4 mm Hg vs. 0.8; and glycated haemoglobin by 0.4% vs. 0.1%. See Table 1.

Other GLP-1 RAs, such as Novo Nordisk's Saxenda (liraglutide), carry similar side effects and risks as Wegovy but are less effective. A recent meta-analysis of three phase 3 trials (296 participants) found that liraglutide did not reduce BMI or body weight compared to placebo in children and adolescents (Cornejo-Estrada et al. 2023). It was instead suggested that liraglutide "might help reduce BMI and weight combined with a healthy diet and regular exercise" (Cornejo-Estrada et al. 2023). The results of liraglutide are better in adult populations, but still not as promising as Wegovy. In the STEP 8 trial comparing weekly semaglutide to liraglutide in 338 adults with overweight or obesity (no diabetes), mean weight loss over 68 weeks was 6.4% with liraglutide, 1.9% with placebo, and 15.8% with Wegovy (Rubino et al. 2022). Semaglutide also outperformed liraglutide in reducing total cholesterol (7.1% vs. 0.1%), systolic blood pressure (5.7 mm Hg vs. 2.9), and diastolic blood pressure (5.0 mm Hg vs. 0.5) (Rubino et al. 2022: 144). So, while there are other GLP-1RAs for weight loss, Wegovy (semaglutide) has so far proven to be the most effective GLP-1RA for weight loss. See Table 2.

Bariatric surgery—which includes gastric banding, gastric bypass, sleeve gastrectomy, and duodenal switch—has been used to treat childhood obesity since the 1980 s and is now considered the "gold standard" for obesity treatment in both adults and children due to its effectiveness (Elkhoury et al. 2023; Tayag 2023). In the Teen-Longitudinal Assessment of Bariatric Surgery (Teen-LABS) study—the longest and ongoing observational cohort study of youth undergoing metabolic and bariatric sur-

gery to date—participants saw an average 27% weight reduction three years post-surgery (Armstrong et al. 2019). The Adolescent Morbid Obesity Surgery (AMOS) study also reported a 29% BMI reduction five years after Roux-en-Y gastric bypass (Olbers et al. 2017). In comparison, children in the STEP TEENS trial taking semaglutide (Wegovy) lost 16.1% over 68 weeks (Weghuber et al. 2022: 2245). In terms of other health indicators, bariatric surgery also has shown better results. Total cholesterol reductions in participants taking semaglutide in STEP TEENS was 8.3% compared to an approximate 10 mg/dL LDL reduction in the bariatric surgery as reported in Teen-LABS. Reductions in systolic blood pressure were 2.7 mm Hg compared to 6 mm Hg, and diastolic blood pressure was 1.4 mm Hg and 5 mm Hg, respectively. Changes in glycated haemoglobin were 0.3% in both groups (Weghuber et al. 2022: 2249–2250; Michalsky et al. 2018: 5–6). See Table 3.

Bariatric surgery, however, has a higher risk profile than Wegovy. Common side effects include nutritional deficiencies, which can lead to anaemia, osteoporosis, neuropathy, kidney stones, and infertility (Weiss 2021; Klair et al. 2023; Cleveland Clinic 2025). Other risks include bleeding, infection, blood clots, hernias, bowel adhesions, anastomotic leaks, and dumping syndrome—a condition where food moves too quickly from the stomach to the small intestine, causing nausea, diarrhea, cramping, and hypoglycaemia (Klair et al. 2023). Additional complications include bile reflux, ulcers, gallstones, weight regain, and in rare cases, death (Courcoulas et al. 2020). Wegovy's known side effects include nausea, vomiting, diarrhea, abdominal pain, bloating, constipation, headaches, and exercise-related weakness. Rare but serious risks include gastroparesis, anhedonia, thyroid tumors, pancreatitis, kidney failure, gallbladder disease, diabetic retinopathy, weight regain, and malnutrition. While both treatments share similar types of side effects, according to Klair et al. (2023), bariatric surgery carries a greater risk due to higher complication rates and higher incidence of adverse effects.

Klair et al. (2023) base their risk assessment on studies of adult populations, and so the same conclusions about risk cannot be automatically applied to paediatric patients. Moreover, assessing the relative the rate of incidents looking at paediatric data is also challenging, in part, due to the different ways in which the data is measured. For example, nausea occurred in 62% of Wegovy users in the STEP TEENS trial but only 15% following bariatric surgery in the Teen-LABS study (Weghuber et al. 2022: 2245; Armstrong et al. 2019). However, broader analyses (including youth and adults) report rates of dumping syndrome and stomach stenosis—both associated with nausea—at 50% and 20%, respectively (Saber and El-Ghazaly 2023). Nonetheless, if we are to follow best practices for off-label use, the rates of side effects and adverse events observed in adult populations are considered relevant—though not definitive—when evaluating potential treatments for children. As such, incorporating this data into a broader risk assessment for paediatric patients suggests that bariatric surgery also carries a heightened risk profile for children than treatment with Wegovy.

In addition to these considerations, as we have discussed elsewhere, bariatric surgery is also a highly invasive procedure that is difficult or even impossible to reverse (Ryan and Savulescu 2025). Vertical sleeve gastrectomy (VSG), the most common bariatric surgery in paediatric patients, removes about 80% of the stomach (Calcaterra et al. 2021). In contrast, Wegovy is minimally invasive, likely less physically

Table 3 Semaglutide (STEP TEENS) compared to bariatric surgery (Teen-LABS)

Intervention	BMI Change (%)	Total Cholesterol Reduction	Systolic Blood Pressure Reduction (mm Hg)	Diastolic Blood Pressure Reduction (mm Hg)	Changes in glycated haemoglobin level (%)	Other Considerations
Semaglutide (STEP TEENS)	−16.1%	−8.3%	−2.7	−1.4	−0.3	Minimally invasive Easily discontinued
Bariatric Surgery (Teen-LABS)*	−27%	LDL ↓ ~10 mg/dL (TC % not given)	−6.0	−5.0	−0.3	Higher risk profile Difficult/Impossible to reverse

*Results at 36-monts (3-year) follow-up data

and emotionally traumatic, and can be easily discontinued. If complications arise, only Wegovy allows for simple cessation, further favouring it in terms of risk (Ryan and Savulescu 2025a).

In all alternative treatments, there is also no clinical evidence that *any* healthcare intervention has been successful in preventing obesity in adulthood. As Szczyrska et al. (2023: 5) explain:

> Short-term studies are the most common in the literature that assesses the effectiveness of interventions in children with excess body weight and evaluate outcomes immediately after intervention completion. Although longer-term studies exist, the follow-up period does not typically exceed two years. Due to variations in intervention types and durations, time between intervention and follow-up, and study designs, comparing results across studies can be challenging.

While several weight-loss alternatives exist, none are clearly better than Wegovy in terms of risk and benefit for children. This is particularly relevant given that not all children who may benefit from intervention require the higher results that bariatric surgery produces. In such cases, the higher risks may outweigh the benefits. For these children, Wegovy may be the most appropriate and effective option.

5 Wegovy and the weight of the unknowns

The clinical data on Wegovy as a treatment for weight loss and related health conditions in paediatric populations is promising. Nonetheless, significant uncertainties remain regarding its long-term risks, side effects, and sustained efficacy. Yet if we treat prevailing practices surrounding off-label prescribing as an appropriate ethical benchmark, it is evident that this level of uncertainty is not, in itself, sufficient to justify prohibiting Wegovy's use. Unknowns of this kind are routinely tolerated in paediatric medicine, where off-label prescribing is common practice. Moreover, unlike most off-label medications, Wegovy has undergone regulatory scrutiny and has been approved for use within its target paediatric population.

It is important to acknowledge, however, that while off-label prescribing in paediatrics is widely accepted, it is not without its own challenges. Petkova et al. (2023) highlight persistent concerns, including the lack of high-quality evidence, pharmacokinetic uncertainties (how a medication is absorbed, distributed, metabolised, and eliminated) and pharmacodynamic ambiguities (how a medication acts on the body, including its therapeutic effects and potential side effects) when extrapolating from adult data—as Klassen et al. (2008) emphasise, "children are not just small adults." They further note the limited guidance available to clinicians on how to evaluate the benefits and risks of off-label use (Petkova et al. 2023: 12).

To improve the safety and quality of off-label prescribing, Petkova et al. recommend expanding age-specific research to generate more robust evidence on drug effects in children. In the absence of such data, they argue that clinical decision-making should rely on the best available scientific evidence and be subject to close

monitoring. They also support the development of a professional network to assist clinicians in navigating off-label prescribing (2023: 12).

Some concerns about off-label prescribing are less applicable to Wegovy. There is high-quality (though short-term) evidence of its safety in children and some prescription guidelines. There are also some specific guidelines for Wegovy's prescription in paediatric care—the current guidelines for prescribing Wegovy to children according to the FDA (2024), for example, state that Wegovy should only be prescribed to children 12 years of age and older with obesity (≥the 95th percentile), that patients (and presumably their guardians) should be informed of the risks, and should be educated to recognize signs and symptoms of hypoglycaemia. Still, it is clear that here too more high-quality research is needed—particularly on the long-term effects and efficacy of Wegovy in children—to ensure high-quality care. Healthcare providers reporting their observations of Wegovy in children to professional databases would also help to build collective clinical knowledge and support more informed, evidence-based care. And while healthcare providers have some guidance for prescribing as supplied by national regulatory bodies, like the FDA, these guidelines are recommendations that stipulate only the minimum threshold requirements that must be met for prescription.

In the absence of more data and comprehensive directives then, it is our view that clinical decision-making should too be guided by the best available scientific evidence, the most up-to-date regulatory guidelines, and a carefully considered risk-benefit analysis that takes into account the individual needs and goals of the child that one is treating. The upshot then is that even if regulatory thresholds are met, prescribing Wegovy to children may, in some cases, be inappropriate. For example, if a child can meet their health goals through diet and exercise, Wegovy may not be suitable as a first-line treatment—that is, given the risks and unknowns, as well as other relevant considerations such as the discomfort of administration, potential side effects, financial cost, and individual preferences of the child. Conversely, if greater weight loss is needed than Wegovy typically supports, bariatric surgery—despite its higher risk—may be more appropriate, especially if Wegovy has already proven unsuccessful. If diet and exercise are insufficient but surgery is too aggressive, Wegovy may be the best option. Wegovy may also serve as a valuable interim step for surgical candidates, potentially eliminating the need for surgery or reducing its risks by promoting prior weight loss. [1] Importantly, what will determine the suitability of treatment will not be the presence of "too many unknowns" per se, but the outcome of a careful, individualized risk-benefit assessment.

The permissibility of prescribing, of course, depends not only on the suitability of the medication as a treatment but also on securing valid consent. Across major paediatric and prescribing guidelines, off-label use is treated as part of ordinary clinical care.[2] As such, the same basic requirements of informed consent apply: clinicians

[1] Chinaka et al. (2020) explain that "Most centers require pre-specified preoperative weight loss before allowing patients to receive surgery." Despite this being the case they explain that "there is not enough high-quality evidence to back up the requirement of pre-specified preoperative weight loss before receiving surgery" and that further validation of benefits may be needed (Chinaka et al. 2020).

[2] According to the Royal College of Paediatrics and Child Health (2025) guidelines, for example, "In general, it is not necessary to take additional steps, beyond those taken when prescribing licensed medicines,

should explain the medicine's purpose, the strength and limits of the evidence base, foreseeable benefits and risks, available alternatives, and plans for monitoring, in a way that is comprehensible to patients and their families. When a medication is off-label, this must also be disclosed. We contend too that such standards should be met when prescribing Wegovy.

While Wegovy does not create distinctive consent challenges arising from clinical unknowns, the social context surrounding its use may introduce additional obstacles to meaningful consent. As discussed elsewhere, weight is highly moralised and stigmatised, and this can pressure children and their families into agreeing to treatment against their better judgment (Ryan and Savulescu 2025b). Conversely, dominant narratives portraying Wegovy as "the easy way out" may generate shame and discourage children and parents from accessing a medication that could benefit them. To support children's autonomy and ensure informed consent, it is our view that clinics should strive to provide weight-safe, stigma-free care environments and actively work to dispel misinformation. What support looks like in practice will necessarily vary across ages and individual children, depending on their capacities and needs. In general, it should involve more active scaffolding of decision-making for younger children, using clear and simple explanations, with a gradual shift toward an advisory or consultative role—accompanied by more comprehensive information—as they move into adolescence.

6 The ethics of wegovy: future directions

In this paper, we have focused on only part of a much wider discussion that is needed on the ethics of Wegovy for children. Other dimensions to consider, and those that should furnish a robust, individual-focused risk-benefit analysis of the use of Wegovy for children, include the impact of treatment on children's mental health, as well as their self-respect and autonomy in childhood. These dimensions intersect with and extend beyond medical considerations to broader social and ideological issues related to stigmatization, inequality, well-being, and the fiduciary duties we have to children as a matter of education.

One important question, in particular, pertains to the appropriate normative aims of healthcare. As we noted above, some commentators, for example, argue that while Wegovy has been approved for children in paediatric care, medicalization is the "wrong way" to achieve weight loss—especially for children, for whom education on proper nutrition and exercise is paramount and should be prioritized. To do otherwise, one may argue, compromises a child's ability to make informed, autonomous choices, and binds them to medicalized reliance. Others have argued, however, that semaglutide may *enhance* a person's autonomy by functioning as a "motivational enhancer" (Ryan and Savulescu 2025). Motivational enhancers are pharmaceuticals used to assist an agent's performance either by enhancing "the agent's will or drive via biomedical means" (Maslen et al. 2020). By silencing food noise, Wegovy may help children control their impulses and allow children greater freedom to engage in

to obtain the consent of parents, carers and child patients."

healthier lifestyle practices when coupled with age-appropriate education and support. It may also allow children to pursue their health goals when traditional methods of diet and exercise have been ineffective.

A full discussion of this issue, and others, are topics we aim to address in future work. What we have aimed to argue here is that Wegovy is a reasonable medical treatment for obesity-related health issues in paediatric care compared to existing alternatives.

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Author contributions Nanette Ryan and Julian Savulescu wrote the main manuscript text.

Data availability No datasets were generated or analysed during the current study.

Declarations

Competing interests Julian Savulescu is a Bioethics Committee consultant for Bayer. This is a remunerated position. Bayer does not produce semaglutide.

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