NEW ZEALAND DATA SHEET

1 PRODUCT NAME

Wegovy® 0.25 mg FlexTouch® solution for injection
Wegovy® 0.5 mg FlexTouch® solution for injection
Wegovy® 1 mg FlexTouch® solution for injection
Wegovy® 1.7 mg FlexTouch® solution for injection
Wegovy® 2.4 mg FlexTouch® solution for injection

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Wegovy 0.25 mg FlexTouch solution for injection
Each pre-filled pen contains 1 mg semaglutide* in 1.5 mL solution. One mL of solution contains 0.68 mg semaglutide*. One pre-filled pen contains 4 doses of 0.25 mg.

Wegovy 0.5 mg FlexTouch solution for injection
Each pre-filled pen contains 2 mg semaglutide* in 1.5 mL solution. One mL of solution contains 1.34 mg semaglutide*. One pre-filled pen contains 4 doses of 0.5 mg.

Wegovy 1 mg FlexTouch solution for injection
Each pre-filled pen contains 4 mg semaglutide* in 3 mL solution. One mL of solution contains 1.34 mg semaglutide*. One pre-filled pen contains 4 doses of 1 mg.

Wegovy 1.7 mg FlexTouch solution for injection
Each pre-filled pen contains 6.8 mg semaglutide* in 3 mL solution. One mL of solution contains 2.27 mg semaglutide*. One pre-filled pen contains 4 doses of 1.7 mg.

Wegovy 2.4 mg FlexTouch solution for injection
Each pre-filled pen contains 9.6 mg semaglutide* in 3 mL solution. One mL of solution contains 3.2 mg semaglutide*. One pre-filled pen contains 4 doses of 2.4 mg.

*human glucagon-like peptide-1 (GLP-1) analogue produced by recombinant DNA technology in Saccharomyces cerevisiae strain followed by purification.

For the full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Solution for injection (injection).
Clear and colourless isotonic solution; pH=7.4.

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

Weight management

Adults

Wegovy is indicated as an adjunct to a reduced-calorie diet and increased physical activity for chronic weight management (including weight loss and weight maintenance) in adults with an initial Body Mass Index (BMI) of

- ≥30 kg/m^2 (obesity), or

- ≥27 kg/m^2 to <30 kg/m^2 (overweight) in the presence of at least one weight-related comorbidity (see Section 5.1 Pharmacodynamic Properties – Clinical trials).

Adolescents

Wegovy is indicated as an adjunct to a reduced-calorie diet and increased physical activity for weight management in adolescents ages 12 years and above with initial:
- obesity* and
- body weight above 60 kg.

Treatment with Wegovy should be re-evaluated and discontinued if adolescent patients have not reduced their BMI by at least 5% after 12 weeks on the 2.4 mg or maximum tolerated dose.

*Obesity (BMI ≥95th percentile) as defined on sex- and age-specific BMI growth charts (CDC.gov) (see Table 1).

Table 1 BMI cut-off points for obesity (≥95th percentile) by sex and age for paediatric patients aged 12 and older (CDC criteria)

Age (years)	**BMI (kg/m^2) at 95th Percentile**	
	Males	**Females**
12	24.2	25.2
12.5	24.7	25.7
13	25.1	26.3
13.5	25.6	26.8
14	26.0	27.2
14.5	26.4	27.7
15	26.8	28.1
15.5	27.2	28.5
16	27.5	28.9
16.5	27.9	29.3
17	28.2	29.6
17.5	28.6	30.0

Reduction in risk of major adverse cardiovascular events

Wegovy is indicated as an adjunct to standard of care therapy to reduce the risk of major adverse cardiovascular events (cardiovascular death, non-fatal myocardial infarction or non-fatal stroke) in adults with established cardiovascular disease, with a Body Mass Index (BMI) ≥ 27 kg/m^2, and without established Type 1 or Type 2 diabetes (see Section 5.1 Pharmacodynamic Properties – Clinical trials).

4.2 Dose and method of administration

The recommended maintenance dose is 2.4 mg once weekly.

The maintenance dose of semaglutide 2.4 mg once-weekly is reached by starting with a weekly dose of 0.25 mg. To reduce the likelihood of gastrointestinal symptoms, the dose should be escalated over a 16-week period to a maintenance dose of 2.4 mg once weekly (see Table 2).

In case of significant gastrointestinal symptoms, consider delaying dose escalation until symptoms have improved. If patients do not tolerate the 2.4 mg dose, the dose can be decreased to a 1.7 mg weekly dose for maintenance. Patients should re-escalate the dose to 2.4 mg weekly, if tolerated. Weekly doses higher than 2.4 mg are not recommended.

Table 2 Dose escalation schedule

Dose escalation	**Weekly dose**
Week 1- 4	0.25 mg
Week 5 – 8	0.5 mg
Week 9 – 12	1 mg
Week 13 – 16	1.7 mg
Maintenance dose	2.4 mg

Method of administration

Wegovy is administered once weekly at any time of the day, with or without meals.

Wegovy is to be injected subcutaneously in the abdomen, in the thigh or in the upper arm. The injection site can be changed without dose adjustment. Wegovy should not be administered intravenously or intramuscularly.

The day of weekly administration can be changed if necessary, as long as the time between two doses is at least 3 days (>72 hours). After selecting a new dosing day, once-weekly dosing should be continued.

Patients should be advised to read the instruction for use included in the package leaflet carefully before administering Wegovy.

The Wegovy FlexTouch pen is for use by one patient only. It contains 4 doses. A new needle should be attached for each use. The needle should be discarded after each use.

Missed dose

If a dose is missed, it should be administered as soon as possible and within 5 days after the missed dose. If more than 5 days have passed, the missed dose should be skipped, and the next dose should be administered on the regularly scheduled day of the week. In each case, patients can then resume their regular once weekly dosing schedule. If more doses are missed, reducing the starting dose for re-initiation should be considered.

Special Populations

Patients with type 2 diabetes
Wegovy should not be used in combination with other GLP-1 receptor agonist products.
When initiating Wegovy in patients with type 2 diabetes, consider reducing the dose of concomitantly administered insulin or insulin secretagogues (such as sulfonylureas) to reduce the risk of hypoglycaemia.

Elderly (≥65 years old)
No dose adjustment is required based on age. Therapeutic experience in patients ≥85 years of age is limited (see Section 5.2 Pharmacokinetic Properties).

Gender
No dose adjustment is required based on gender.

Race and ethnicity
No dose adjustment is required based on race and ethnicity.

Patients with renal impairment
No dose adjustment is required for patients with renal impairment. Experience with the use of semaglutide in patients with severe (CrCL <30 mL/min) renal impairment is limited. Semaglutide is not recommended for use in patients with end-stage renal disease (see section 5.2 Pharmacokinetic Properties).

Patients with hepatic impairment
No dose adjustment is required for patients with hepatic impairment (see section 5.2 Pharmacokinetic Properties). Experience with the use of semaglutide in patients with severe hepatic impairment is limited. Caution should be exercised when treating these patients with semaglutide.

Children and adolescents
The safety and efficacy of Wegovy in children below 12 years of age have not been studied.
For adolescents aged 12 to 17 years, the same dose escalation schedule as for adults should be applied (see Table 2). The dose should be increased until the maintenance dose of 2.4 mg weekly or a lower maximum tolerated dose has been reached. Weekly doses higher than 2.4 mg are not recommended.
It is recommended to regularly review the goals of treatment with Wegovy, particularly once the target weight (e.g. BMI <85th percentile) has been achieved.

4.3 Contraindications

Hypersensitivity to the active substance or to any of the excipients listed in section 6.1 (List of Excipients).

4.4 Special warnings and precautions for use

Aspiration in association with general anaesthesia or deep sedation

Cases of pulmonary aspiration have been reported in patients receiving GLP- 1 RAs undergoing general anaesthesia (GA) or deep sedation despite reported adherence to preoperative fasting recommendations. Therefore, the increased risk of residual gastric content because of delayed gastric emptying should be considered prior to performing procedures with GA or deep sedation.

Gastrointestinal effects and dehydration
Use of GLP-1 receptor agonists may be associated with gastrointestinal adverse reactions. This should be considered when treating patients with impaired renal function as nausea, vomiting and diarrhoea may cause dehydration which in rare cases can lead to a deterioration of renal function (see section 4.8). Patients treated with semaglutide should be advised of the potential risk of dehydration in relation to gastrointestinal side effects and take precautions to avoid fluid depletion.

There have been postmarketing reports of acute kidney injury and worsening of chronic renal failure, which have in some cases required haemodialysis, in patients treated with semaglutide.

Patients with gastroparesis
Semaglutide treated patients with gastroparesis may experience more serious or severe gastrointestinal adverse events. Semaglutide should be used with caution in these patients (see section 4.8).

Acute pancreatitis
Acute pancreatitis, including fatal and non-fatal haemorrhagic or necrotising pancreatitis, has been observed with the use of GLP-1 receptor agonists, including semaglutide. Patients should be informed of the characteristic symptoms of acute pancreatitis. If pancreatitis is suspected, Wegovy should be discontinued; if confirmed, Wegovy should not be restarted. Caution should be exercised in patients with a history of pancreatitis.

The clinical significance of elevations in lipase or amylase with Wegovy is unknown in the absence of other signs and symptoms of pancreatitis.

Populations not studied
The safety and efficacy of Wegovy have not been investigated in patients:
– treated with other products for weight management,
– with type 1 diabetes,
– with congestive heart failure New York Heart Association (NYHA) class IV.

The use of semaglutide is not recommended in these patients.

There is limited experience with Wegovy in patients:
– aged 85 years or more,
– with inflammatory bowel disease,
– with diabetic gastroparesis.

Use with caution in these patients.

Patients with type 2 diabetes
Semaglutide must not be used as a substitute for insulin in patients with diabetes.

Semaglutide should not be used in combination with other GLP-1 receptor agonist products. It has not been evaluated and an increased risk of adverse reactions related to overdose is considered likely.

Hypoglycaemia in patients with overweight and obesity and type 2 diabetes
In patients with type 2 diabetes, semaglutide lowers blood glucose and can cause hypoglycaemia (see section 4.8 Undesirable Effects). Patients treated with semaglutide in combination with a sulfonylurea or insulin may have an increased risk of hypoglycaemia. The risk of hypoglycaemia can be lowered by reducing the dose of sulfonylurea or insulin when initiating treatment with a GLP-1 receptor agonist. Monitor blood glucose in patients at increased risk of hypoglycaemia.

The addition of Wegovy in patients treated with insulin has not been evaluated.

Diabetic retinopathy in patients with overweight or obesity and type 2 diabetes
Rapid improvement in glucose control has been associated with a temporary worsening of diabetic retinopathy. Long-term glycaemic control decreases the risk of diabetic retinopathy. Patients with a history of diabetic retinopathy should be monitored for worsening and treated according to local

clinical guidelines. There is no experience with Wegovy in patients with type 2 diabetes with uncontrolled or potentially unstable diabetic retinopathy. In these patients, treatment with Wegovy is not recommended.

Use in the elderly
See section 5.2 Pharmacokinetic Properties.

Paediatric use
Safety and efficacy of Wegovy in children below 12 years have not been studied.

Use in renal impairment
Experience with the use of semaglutide in patients with severe (CrCL <30 mL/min) renal impairment is limited. Semaglutide is not recommended for use in patients with end-stage renal disease (see sections 5.1 Pharmacodynamic Properties and 5.2 Pharmacokinetic Properties)

Use in hepatic impairment
Experience with the use of semaglutide in patients with severe hepatic impairment is limited. Caution should be exercised when treating these patients with semaglutide.

Effects on laboratory tests
No data available.

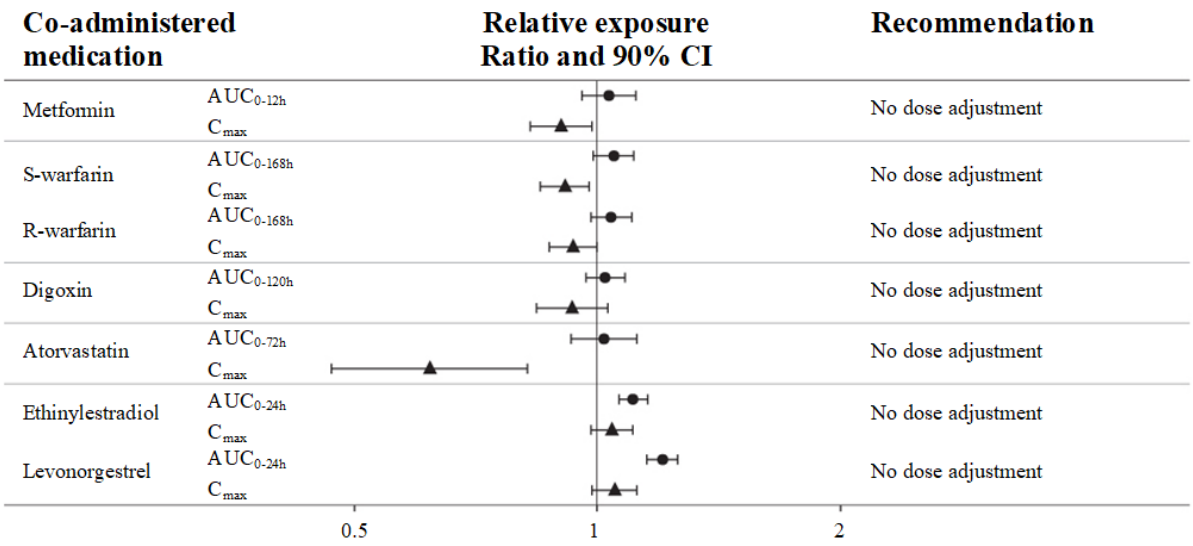
4.5 Interaction with other medicines and other forms of interaction

In vitro studies have shown very low potential for semaglutide to inhibit or induce CYP enzymes, and to inhibit drug transporters.

The delay of gastric emptying with semaglutide may influence the absorption of concomitantly administered oral medicinal products; therefore, semaglutide should be used with caution in patients receiving oral medicinal products that require rapid gastrointestinal absorption. No clinically relevant effect on the rate of gastric emptying was observed with semaglutide 2.4 mg.

In clinical pharmacology trials assessing the effect of semaglutide 1.0 mg on the absorption of co-administered oral medications at steady state no clinically relevant drug-drug interactions with semaglutide (Figure 1) was observed based on the evaluated medications. Therefore, no dose adjustment is required when co-administered with semaglutide.

Figure 1 (Forest Plot) - Impact of semaglutide on the pharmacokinetics of co-administered medications



Relative exposure in terms of AUC and C_{max} for each medication when given with semaglutide compared to without semaglutide. Metformin and oral contraceptive drug (ethinylestradiol/levonorgestrel) were assessed at steady state. Warfarin (S-warfarin/R-warfarin), digoxin and atorvastatin were assessed after a single dose.
Abbreviations: AUC: area under the curve. C_{max}: maximum concentration. CI: confidence interval

Oral contraceptives

Semaglutide is not anticipated to decrease the effectiveness of oral contraceptives as semaglutide did not change the overall exposure of ethinylestradiol and levonorgestrel to a clinically relevant degree, when an oral contraceptive combination medicinal product (0.03 mg ethinylestradiol/0.15 mg levonorgestrel) was co-administered with semaglutide. Exposure of ethinylestradiol was not affected; an increase of 20% was observed for levonorgestrel exposure at steady state. Cmax was not affected for any of the compounds.

Atorvastatin

Semaglutide did not change the overall exposure of atorvastatin following a single dose administration of atorvastatin (40 mg). Atorvastatin Cmax was decreased by 38%. This was assessed not to be clinically relevant.

Digoxin

Semaglutide did not change the overall exposure or Cmax of digoxin following a single dose of digoxin (0.5 mg).

Metformin

Semaglutide did not change the overall exposure or Cmax of metformin following dosing of 500 mg twice daily over 3.5 days.

Warfarin and other coumarin derivatives

Semaglutide did not change overall exposure or Cmax of R- and S-warfarin following a single dose of warfarin (25 mg), and the pharmacodynamic effects of warfarin as measured by the international normalised ratio (INR) were not affected in a clinically relevant manner. However, cases of decreased INR have been reported during concomitant use of acenocoumarol and semaglutide.

Upon initiation of semaglutide treatment in patients on warfarin or other coumarin derivatives, frequent monitoring of INR is recommended.

4.6 Fertility, pregnancy and lactation

Effects on fertility

The effect of semaglutide on fertility in humans is unknown. Semaglutide did not affect male fertility in rats at daily subcutaneous (s.c.) doses of 828 µg/kg, resulting in exposures approximately 4.5 times the clinical AUC. In female rats, an increase in oestrous length and a small reduction in number of ovulations were observed at doses associated with maternal body weight loss (≥30 µg/kg/day SC, resulting in subclinical exposures).

Use in pregnancy - Pregnancy Category D

Semaglutide should not be used during pregnancy. Women of childbearing potential are recommended to use contraception when treated with semaglutide. If a patient wishes to become pregnant, or pregnancy occurs, semaglutide should be discontinued. Semaglutide should be discontinued at least 2 months before a planned pregnancy due to the long half-life (see section 5.2 Pharmacokinetic Properties).

Studies in animals have shown reproductive toxicity when semaglutide was administered during organogenesis. In pregnant rats, embryofetal toxicity (lethality, impaired growth and an increased incidence of fetal abnormalities) was observed at subclinical plasma exposures. Mechanistic studies suggest a direct GLP-1 receptor mediated role of semaglutide on some of the effects in rats (species specific). In pregnant rabbits, pharmacologically mediated reductions in maternal body weight gain and food consumption were observed at all dose levels. Early pregnancy losses and increased incidences of minor visceral (kidney, liver) and skeletal (sternebra) fetal abnormalities were observed at ≥0.0025 mg/kg/day, at clinically relevant exposures. In pregnant cynomolgus monkeys, pharmacologically mediated, marked initial maternal body weight loss and reductions in body weight gain and food consumption coincided with the occurrence of sporadic abnormalities (vertebra, sternebra, ribs) and with an increase in early pregnancy losses at ≥0.075 mg/kg twice weekly (>1.4- fold clinical exposure at 2.4 mg/week). Exposures at the NOAEL in all species were subclinical and a direct effect of semaglutide on the fetus cannot be excluded.

Use in lactation

In lactating rats, semaglutide was excreted in milk. A risk to a breast-fed child cannot be excluded. Semaglutide should not be used during breast-feeding.

4.7 Effects on ability to drive and use machines

Semaglutide has no or negligible influence on the ability to drive or use machines. However, dizziness can be experienced mainly during the dose escalation period. Driving or use of machines should be done cautiously if dizziness occurs.

Effect on the ability to drive and use machines for patients with overweight or obesity and type 2 diabetes

If semaglutide is used in combination with a sulfonylurea or insulin, patients should be advised to take precautions to avoid hypoglycaemia while driving and using machines.

4.8 Undesirable effects

Summary of safety profile

In four phase 3a trials, 2,650 adult patients were exposed to Wegovy. The duration of the trials were 68 weeks. Similar to other GLP-1 receptor agonists, the most frequently reported adverse reactions were gastrointestinal disorders including nausea, diarrhoea, constipation and vomiting.

Tabulated list of adverse reactions

Table 3 lists adverse reactions identified in phase 3a clinical trials in adults. The frequencies are based on a pool of the phase 3a trials.

Adverse reactions associated with Wegovy are listed by system organ class and frequency. Frequency categories are defined as: Very common (≥1/10); common (≥1/100 to <1/10); uncommon (≥1/1,000 to <1/100); rare (≥1/10,000 to <1/1,000); very rare (<1/10,000).

Table 3 Adverse reactions from controlled phase 3 trials in adults

MedDRA system organ class	**Very common**	**Common**	**Uncommon**	**Rare**
Immune system disorders				Anaphylactic reaction
Metabolism and nutrition disorders		Hypoglycaemia in patients with type 2 diabetes[a]		
Nervous system disorders	Headache[b]	Dizziness[b] Dysgeusia[b] Dysaesthesia[a,c]		
Eye disorders		Diabetic retinopathy in patients with type 2 diabetes[a]		
Cardiac disorders			Increased heart rate[a,c]	
Vascular disorders			Hypotension Orthostatic hypotension	
Gastrointestinal disorders	Vomiting[a,b] Diarrhoea[a,b] Constipation[a,b] Nausea[a,b] Abdominal pain[b,c]	Gastritis[b,c] Gastrooesophageal reflux disease[b] Dyspepsia[b] Eructation[b] Flatulence[b] Abdominal distension[b] Dry mouth	Acute pancreatitis[a] Delayed gastric emptying	
Hepatobiliary disorders		Cholelithiasis[a]		
Skin and subcutaneous tissue disorders		Hair loss[a]		
General disorders and administration site conditions	Fatigue[b,c]	Injection site reactions[c]		

MedDRA system organ class	Very common	Common	Uncommon	Rare
Investigations			Increased amylase[c] Increased lipase[c]	

[a)] see description of selected adverse reactions below
[b)] mainly seen in the dose-escalation period
[c)] Grouped preferred terms

Description of selected adverse reactions

Gastrointestinal adverse reactions
The events were most frequently reported during dose escalation. Over 68 weeks, nausea occurred in 43.9% of patients when treated with Wegovy (16.1% for placebo), diarrhoea in 29.7% (15.9% for placebo) and vomiting in 24.5% (6.3% for placebo). Most events were mild to moderate in severity and of short duration. Constipation occurred in 24.2% of patients treated with Wegovy (11.1% for placebo) and was mild to moderate in severity and of longer duration. In patients treated with semaglutide, median duration of nausea was 8 days, 2 days for vomiting, 3 days for diarrhoea and 47 days for constipation.

Other events that occurred at a higher incidence among Wegovy-treated adult patients included dyspepsia, abdominal pain, abdominal distension, eructation, flatulence, gastroesophageal reflux disease, gastritis, haemorrhoids, and hiccups.

Patients with moderate renal impairment (eGFR ≥30 mL/min/1.73m^2) may experience more gastrointestinal effects when treated with semaglutide. The gastrointestinal events led to permanent treatment discontinuation in 4.3% of patients.

Patients with gastroparesis may experience more serious or severe gastrointestinal effects when treated with semaglutide.

Acute pancreatitis
The frequency of adjudication-confirmed acute pancreatitis reported in phase 3a clinical trials was 0.2% for semaglutide and <0.1% for placebo, respectively.

In SELECT, the cardiovascular outcome trial, the frequency of acute pancreatitis confirmed by adjudication was 0.2% for Wegovy and 0.3% for placebo.

Acute gallstone disease/cholelithiasis/cholecystitis
Cholelithiasis was reported in 1.6% and led to cholecystitis in 0.6% of patients treated with semaglutide. Cholelithiasis and cholecystitis was reported in 1.1% and 0.3%, respectively, of patients treated with placebo.

Hair loss
Hair loss was reported in 2.5% of patients treated with semaglutide and in 1.0% of patients treated with placebo. The events were mainly of mild severity and most patients recovered while on continued treatment. Hair loss was reported more frequently in patients with a greater weight loss (≥20%).

Increased heart rate

In the phase 3a trials, a mean increase of 3 beats per minute (bpm) from a baseline mean of 72 bpm was observed in patients treated with semaglutide. The proportions of patients with a maximum increase from baseline ≥20 bpm at any timepoint during the on-treatment period were 26.0% in the semaglutide group vs. 15.6% in the placebo group.

Immunogenicity
Consistent with the potentially immunogenic properties of medicinal products containing proteins or peptides, patients may develop antibodies following treatment with semaglutide. The proportion of patients testing positive for anti-semaglutide antibodies at any time post-baseline was low (2.9%) and no patients had anti-semaglutide neutralising antibodies or anti-semaglutide antibodies with endogenous GLP-1 neutralising effect at end-of-trial.

Dysaesthesia
Events related to a clinical picture of altered skin sensation such as dysaesthesia, paraesthesia, hyperaesthesia, burning sensation, allodynia and sensitive skin were reported in 2.1% of patients treated with Wegovy injection and 1.2% of patients treated with placebo. The events were mild to moderate in severity and most patients recovered while on continued treatment.

Fractures
In SELECT, the cardiovascular outcomes trial in adults, more fractures of the hip and pelvis were reported on semaglutide than on placebo in female patients: 1.0% (24/2448) vs. 0.2% (5/2424), and in patients aged 75 years and older: 2.4% (17/703) vs. 0.6% (4/663), respectively.

Urolithiasis
In SELECT, the cardiovascular outcomes trial, 1.2% of semaglutide-treated patients and 0.8% of patients receiving placebo reported urolithiasis, including serious reactions that were reported more frequently among patients receiving semaglutide (0.6%) than placebo (0.4%).

Patients with type 2 diabetes
Hypoglycaemia in patients with overweight or obesity and type 2 diabetes
In STEP 2, clinically significant hypoglycaemia was observed in 6.2% (0.1 events/patient year) of subjects treated with semaglutide compared with 2.5% (0.03 events/patient year) of subjects treated with placebo. One episode (0.2% of subjects, 0.002 events/patient year) was reported as severe. The risk of hypoglycaemia was increased when semaglutide was used with a sulfonylurea.

Diabetic retinopathy in patients with overweight or obesity and type 2 diabetes
Few episodes of diabetic retinopathy (4.0 % vs 2.7% of patients treated with Wegovy vs placebo, respectively) were observed in STEP 2.
Long-term glycaemic control decreases the risk of diabetic retinopathy. A 2-year clinical trial investigated semaglutide 0.5 mg and 1 mg vs placebo in 3,297 patients with type 2 diabetes, with high cardiovascular risk, long duration of diabetes and poorly controlled blood glucose. In this trial, adjudicated events of diabetic retinopathy complications occurred in more patients treated with semaglutide (3.0%) compared to placebo (1.8%). This was observed in insulin-treated patients with known diabetic retinopathy. The treatment difference appeared early and persisted throughout the trial.

In STEP 2, retinal disorders were reported by 6.9% of patients treated with Wegovy, 6.2% of patients treated with semaglutide 1 mg, and 4.2% of patients treated with placebo. The majority of events were reported as diabetic retinopathy (4.0%, 2.7%, and 2.7%, respectively) and non-proliferative retinopathy (0.7%, 0%, and 0%, respectively).

Paediatric population
In a clinical trial conducted in adolescents of 12 years to below 18 years with obesity or overweight with at least one weight-related comorbidity, 133 patients were exposed to Wegovy. The trial duration was 68 weeks.

Overall, the frequency, type and severity of adverse reactions in the adolescents were comparable to that observed in the adult population. Cholelithiasis was reported in 3.8% of patients treated with Wegovy.

Semaglutide did not appear to affect growth or pubertal development during the trial period. To date, there are no long-term (beyond 68 weeks) clinical trial data on safety or efficacy in adolescents.

Cardiovascular outcomes trial
In SELECT, the cardiovascular outcome trial, the adverse event profile of systematically collected adverse events was similar to that seen in the phase 3a trials (described in Section 5.1 Pharmacodynamic Properties – Clinical trials). Additional adverse events included urolithiasis and hip fractures. For non-systematically collected adverse events, no definite conclusions can be made.

Post-market adverse effects
- Skin and subcutaneous tissue disorders: Alopecia
- Gastrointestinal disorders: Intestinal obstruction*

*grouped term covering PTs intestinal obstruction, ileus, small intestinal obstruction.

Reporting of suspected adverse reactions
Reporting suspected adverse reactions after authorisation of the medicine is important. It allows continued monitoring of the benefit/risk balance of the medicine. Healthcare professionals are asked to report any suspected adverse reactions: https://pophealth.my.site.com/carmreportnz/s/.

4.9 Overdose

Overdose with semaglutide may be associated with gastrointestinal disorders which could lead to dehydration. In the event of overdose the patient should be observed for clinical signs and appropriate supportive treatment initiated. A prolonged period of observation and treatment for these symptoms may be necessary, taking into account the long half-life of Wegovy of approximately 1 week (see section 5.2 Pharmacokinetic Properties).

For risk assessment and advice on the management of overdose please contact the National Poisons Centre on 0800 POISON (0800 764766).

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Mechanism of action

Semaglutide is a GLP-1 analogue with 94% sequence homology to human GLP-1. Semaglutide acts as a GLP-1 receptor agonist that selectively binds to and activates the GLP-1 receptor, the target for native GLP-1.

GLP-1 is a physiological regulator and has multiple actions in glucose and appetite regulation. The glucose and appetite effects are specifically mediated via GLP-1 receptors in the pancreas and the brain.

Clinical studies show that semaglutide reduces energy intake, increases feelings of satiety, fullness and control of eating, reduces feelings of hunger, and frequency and intensity of cravings.

Animal studies show that semaglutide works in the brain through the GLP-1 receptor. Semaglutide has direct effects on areas in the brain involved in homeostatic regulation of food intake in the hypothalamus and the brainstem. Semaglutide may affect the hedonic reward system through direct and indirect effects in brain areas including the septum, thalamus and amygdala.

Semaglutide orchestrates the homeostatic and hedonic contributions with executive function to regulate caloric intake, appetite, reward and food choice.

In addition, in clinical studies semaglutide has shown to reduce blood glucose through a mechanism where it stimulates insulin secretion and lowers glucagon secretion, both in a glucose-dependent manner. The mechanism of blood glucose lowering also involves a minor delay in gastric emptying in the early postprandial phase. During hypoglycaemia, semaglutide diminishes insulin secretion and does not impair glucagon secretion.

The mechanism of action of semaglutide for cardiovascular risk reduction has not been established. However, it is likely multifactorial, in part driven by effects on known cardiovascular risk factors (including reductions in blood pressure, improvements in lipid profile, anti-inflammatory effects defined by reductions in hsCRP, reductions in body weight and improvements in glucose metabolism defined by HbA1c) and an additional direct effect of semaglutide.

Weight loss distribution

In a sub-study in STEP 1 (N = 140), body composition was measured using dual energy X-ray absorptiometry (DEXA). The results of the DEXA assessment showed that treatment with semaglutide was accompanied by greater reduction in fat mass than in lean body mass leading to an improvement in body composition compared to placebo after 68 weeks. Furthermore, this reduction in total fat mass was accompanied by a reduction in visceral fat. In the semaglutide group, there was a mean (SD) decrease in total fat mass proportion of 3.9%-points (5.4%-points), an increase in lean body mass proportion of 3.4% (5.1%) and a decrease in regional visceral fat mass proportion of 2.2%-points (4.4%). These results suggest that most of the total weight loss was attributable to a reduction in fat tissue, including visceral fat.

Appetite regulation, energy intake and food choice

Semaglutide reduces appetite by increasing feelings of fullness and satiety, while lowering hunger and prospective food consumption. In a phase 1 trial, energy intake during an ad libitum meal was 35% lower with semaglutide compared to placebo after 20 weeks of dosing. This was supported by improved control of eating, less food cravings (for dairy and savoury foods), less desire for sweet food and a relatively lower preference for high fat food.

Cardiac electrophysiology (QTc)

The effect of semaglutide on cardiac repolarization was tested in a thorough QTc trial. Semaglutide did not prolong QTc intervals at doses up to 1.5 mg at steady state.
The semaglutide exposure for subjects with overweight or obesity treated with Wegovy is comparable to the exposure evaluated in the semaglutide QTc study in healthy volunteers.

Clinical trials

Adult population

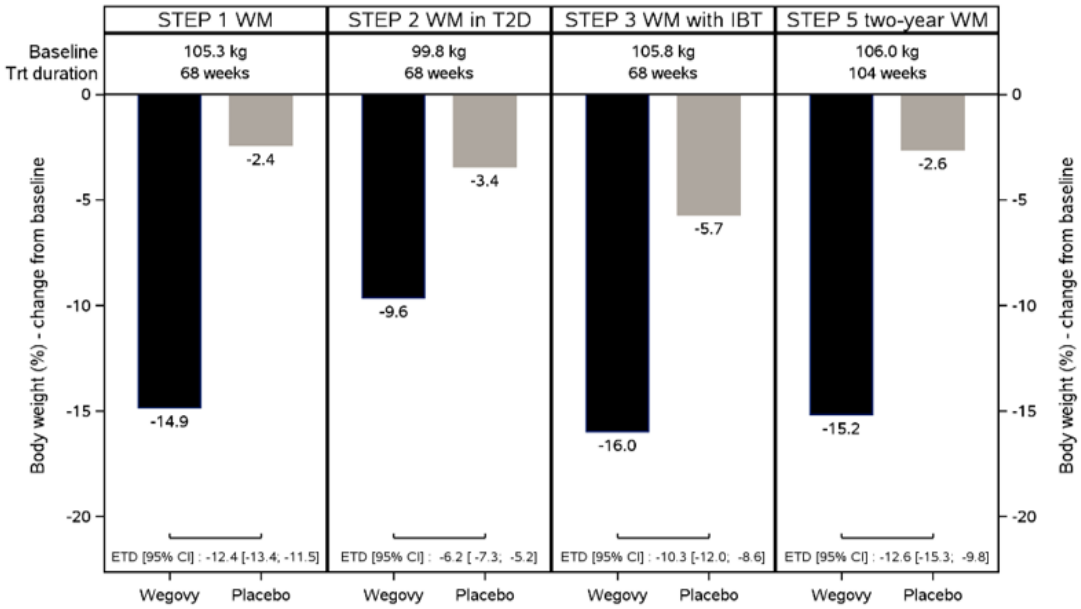
The efficacy and safety of semaglutide for weight management in combination with a reduced calorie intake and increased physical activity were evaluated in four 68 week double-blinded randomised placebo-controlled phase 3a trials (STEP 1-4). A total of 4,684 adult patients (2,652 randomised to treatment with semaglutide) were included in these trials. Furthermore, the two-year efficacy and safety of semaglutide compared to placebo were evaluated in a double-blinded randomised placebo-controlled phase 3b trial (STEP 5) including 304 patients (152 in treatment with semaglutide).

Treatment with semaglutide demonstrated superior and clinically meaningful weight loss compared with placebo in patients with obesity (BMI ≥30 kg/m^2) or overweight (BMI ≥27 kg/m^2 to <30 kg/m^2) and at least one weight-related comorbidity, which was maintained for the duration of treatment (Figure 2). Furthermore, across the trials, a higher proportion of patients achieved ≥5%, ≥10% and ≥15% weight loss with semaglutide compared with placebo.

Treatment with semaglutide also showed statistically significant improvements in waist circumference and systolic blood pressure compared to placebo. Semaglutide also showed statistically significant improvements in physical functioning compared to placebo, except for STEP 3 where the improvement was not statistically significant.

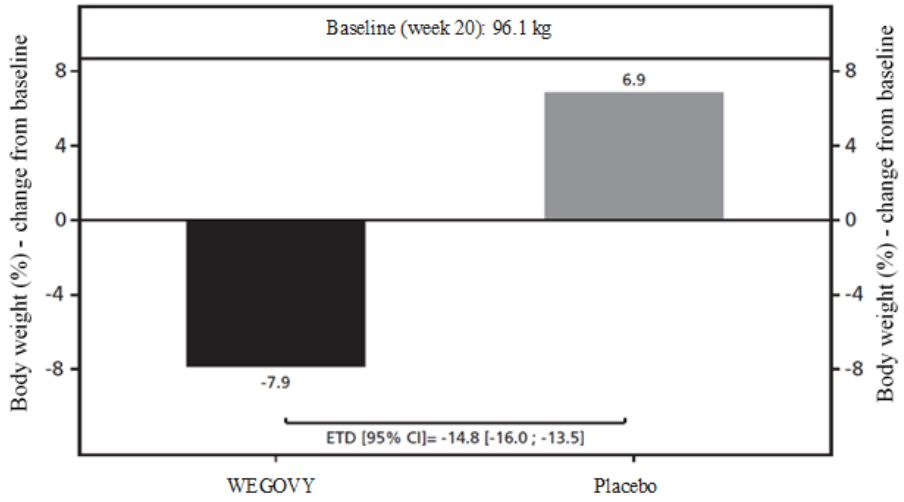
Semaglutide demonstrated efficacy in weight loss regardless of age, sex, race, ethnicity, baseline body weight, BMI, presence of type 2 diabetes and level of renal function.

Figure 2 Body weight (%) change from baseline to week 68 and 104



Trt: Treatment, ETD: Estimated treatment difference, CI: Confidence interval.
Analysis of data from in-trial period. Estimated treatment difference and corresponding confidence interval are from the primary analysis.
nn9536/nn9536-exploratory/lueu001
25JAN2022:12:58:17 - fbarploteff.sas/fbarbwchbitpct.png

STEP 4 Sustained WM*



*baseline for STEP 4 was defined as the start of the randomisation period at week 20

In addition, a dedicated cardiovascular outcomes trial, SELECT, has been conducted with semaglutide 2.4 mg once weekly against placebo in patients with established cardiovascular disease, BMI ≥27 kg/m^2 and without a history of type 1 and type 2 diabetes. Treatment with semaglutide in SELECT resulted in a significant risk reduction (20%) in 3-component MACE (cardiovascular death, non-fatal myocardial infarction or non-fatal stroke) compared with placebo.

Weight Management

STEP 1: Weight management

In a 68-week double-blind trial, 1,961 patients with obesity (BMI ≥30 kg/m^2), or with overweight (BMI ≥27 kg/m^2 to <30 kg/m^2) and at least one weight-related comorbidity were randomised to semaglutide or placebo. All patients received counselling with regards to diet (500 kcal/2092 kJ deficit per day) relative to the estimated total energy expenditure (TEE) (calculated once at randomisation), and physical activity (150 min of physical activity per week was encouraged).

At baseline, patients had a mean BMI of 37.9 kg/m^2 and a mean body weight of 105.3 kg. The mean age of patients was 46 years. There were 75.1% Caucasian/White, 5.7% Black/African American, and 13.3% Asian. A total of 12.0% were Hispanic or Latino. The majority of patients had at least one weight-related comorbidity. These included, but were not limited to, pre-diabetes (43.7%), dyslipidaemia (37.0%), hypertension (36.0%), knee or hip osteoarthritis (15.9%), obstructive sleep apnoea (11.7%), asthma/chronic obstructive pulmonary disease (COPD) (11.6%), liver disease (non-alcoholic fatty liver disease (NAFLD) or non-alcoholic steatohepatitis (NASH)) (8.6%) and polycystic ovary syndrome (PCOS) (6.6%).

Weight loss with semaglutide occurred early and continued throughout the trial. At end of treatment (week 68), the weight loss with semaglutide was superior and clinically meaningful compared with placebo (see Table 4 and

Figure 3). Furthermore, a higher proportion of patients achieved ≥5%, ≥10%, ≥15% and ≥20% weight loss with semaglutide compared with placebo (see Table 4 and

Figure 4). Among patients with prediabetes at baseline, 84.1% and 47.8% achieved a normo-glycaemic status at end of treatment with semaglutide and placebo, respectively.

Following the 68-week trial, a 52-week off-treatment extension was conducted including 327 patients who had completed the main trial period on the maintenance dose of semaglutide or placebo. The trial extension consisted of four clinic visits and did not include structured lifestyle intervention. In the off-treatment period from week 68 to week 120, mean body weight increased in both treatment groups. However, for patients that had been treated with semaglutide for the main trial period the weight remained 5.6% below baseline compared to 0.1% for the placebo group.

Table 4 Results of a 68-week trial comparing semaglutide with placebo in patients with obesity, or overweight and at least one weight-related comorbidity (STEP 1)

	Wegovy	**Placebo**
Full analysis set (N)	1,306	655
Body weight		
Baseline (kg)	105.4	105.2
Change (%) from baseline[1,2]	-14.9	-2.4
Difference (%) from placebo[1] [95% CI]	-12.4 [-13.4; -11.5]*	-
Change (kg) from baseline	-15.3	-2.6
Difference (kg) from placebo[1] [95% CI]	-12.7 [-13.7; -11.7]	-
Patients (%) achieving weight loss ≥5%[3]	83.5*	31.1
Patients (%) achieving weight loss ≥10%[3]	66.1*	12.0
Patients (%) achieving weight loss ≥15%[3]	47.9*	4.8
Patients (%) achieving weight loss ≥20%[3]	30.2	1.7
Waist circumference (cm)		
Baseline	114.6	114.8
Change from baseline[1]	-13.5	-4.1
Difference from placebo[1] [95% CI]	-9.4 [-10.3; -8.5]*	-
Cardiometabolic factors		
Systolic blood pressure (mmHg)		
Baseline	126	127
Change from baseline[1]	-6.2	-1.1
Difference from placebo[1] [95% CI]	-5.1 [-6.3; -3.9]*	-
Diastolic blood pressure (mmHg)		
Baseline	80	80
Change from baseline[1]	-2.8	-0.4
Difference from placebo[1] [95% CI]	-2.4 [-3.3; -1.6]	-
Lipids		
Total cholesterol		
Baseline (mmol/L)[4]	4.9	5.0
Change (%) from baseline[1]	−3.3	0.1
Relative Difference (%) from placebo[1] [95% CI]	−3.3 [−4.8; −1.8]	-
LDL cholesterol		
Baseline (mmol/L)[4]	2.9	2.9
Change (%) from baseline[1]	−2.5	1.3
Relative Difference (%) from placebo[1] [95% CI]	−3.8 [−5.9; −1.5]	-

HDL cholesterol		
Baseline (mmol/L)[4]	1.3	1.3
Change (%) from baseline[1]	5.2	1.4
Relative Difference (%) from placebo[1] [95% CI]	3.8 [2.2; 5.4]	-
Triglycerides		
Baseline (mmol/L)[4]	1.4	1.4
Change (%) from baseline[1]	−21.9	−7.3
Relative Difference (%) from placebo[1] [95% CI]	−15.8 [−18.8; −12.7]	-
CRP		
Baseline (mg/L)[4]	3.9	3.9
Change (%) from baseline[1]	−52.6	−15.0
Relative Difference (%) from placebo[1] [95% CI]	-44.3 [−49.5; −38.5]	-
Glycaemic factors		
HbA_{1c} (%)		
Baseline	5.7	5.7
Change from baseline[1,2]	−0.5	−0.2
Difference from placebo[1] [95% CI]	−0.3 [−0.3; −0.3]	-
FPG (mmol/L)		
Baseline	5.3	5.3
Change from baseline[1]	−0.5	−0.03
Difference from placebo[1] [95% CI]	−0.4 [−0.5; −0.4]	-
Glycaemic status[5]		
Patients (%) with pre-diabetes at baseline	43.7	
Patients (%) achieving normo-glycaemic status at end of treatment	84.1	47.8

[*] p<0.0001 (unadjusted 2-sided) for superiority.

[1] Estimated using an ANCOVA model using multiple imputation based on all data irrespective of discontinuation of randomised treatment or initiation of other anti-obesity medication or bariatric surgery.

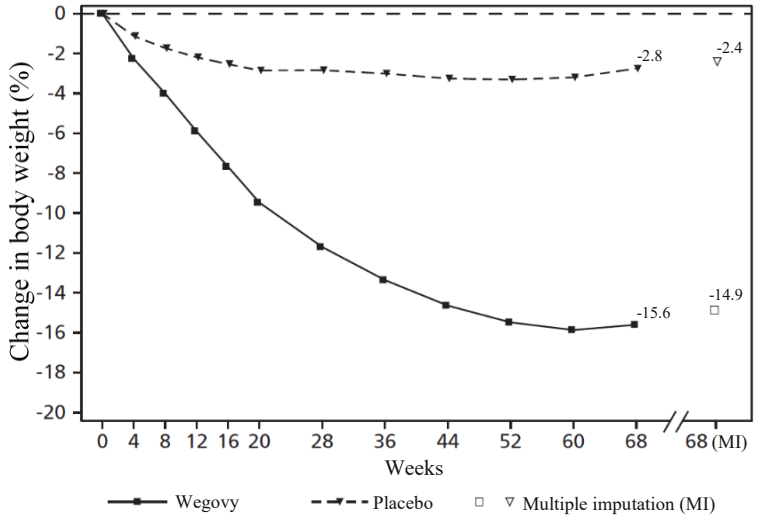
[2] During the trial, randomised treatment was permanently discontinued by 17.1% and 22.4% of patients randomised to Wegovy and placebo, respectively. Assuming that all randomised patients stayed on treatment and did not receive additional anti-obesity therapies, the estimated changes from randomisation to week 68 for body weight based on a Mixed Model for Repeated Measures including all observations until first discontinuation were -16.9% and -2.4% for Wegovy and placebo respectively.

[3] Estimated from binary regression model based on same imputation procedure as in primary analysis.

[4] Geometric mean

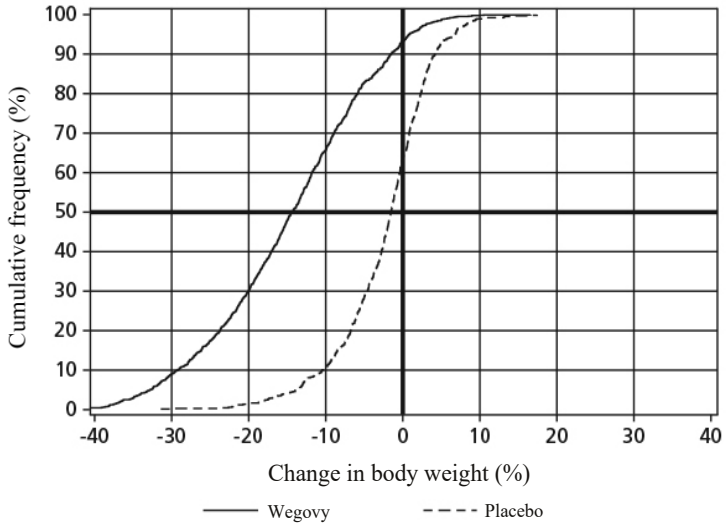
[5] exploratory endpoint

Figure 3 STEP 1 - Mean change in body weight (%) from baseline to week 68



Observed values for patients completing each scheduled visit, and estimates with multiple imputations (MI) from retrieved dropouts

Figure 4 STEP 1 - Cumulative distribution of change (%) in body weight after 68 weeks of treatment



Observed data from in-trial period including imputed data from retrieved dropouts for missing observations.

<u>STEP 2: Weight management in patients with type 2 diabetes</u>

In a 68-week, double-blind and double-dummy trial, 1,210 patients with overweight or obesity (BMI ≥27 kg/m^2) and type 2 diabetes were randomised to either Wegovy, semaglutide 1 mg once-weekly or placebo. Patients included in the trial had insufficiently controlled diabetes (HbA_{1c} 7–10%) and were treated with either diet and exercise alone or 1–3 oral antidiabetic drugs. All patients received counselling with regards to diet (500 kcal/2092 kJ deficit per day) relative to the estimated total energy expenditure (TEE) (calculated once at randomisation), and physical activity (150 min of physical activity per week was encouraged).

At baseline, patients had a mean BMI of 35.7 kg/m^2, a mean body weight of 99.8 kg and a mean HbA_{1C} of 8.1%. The mean age was 55 years. There were 62.1% Caucasian/White, 8.3% Black/African American, and 26.2% Asian. A total of 12.8% were Hispanic or Latino. The majority of patients had at

least two weight-related comorbidities. Besides type 2 diabetes these included, but were not limited to, hypertension (69.8%), dyslipidaemia (68.0%), liver disease (NAFLD or NASH) (22.6%), knee or hip osteoarthritis (19.6%), obstructive sleep apnoea (15.1%), asthma/COPD (8.4%) and PCOS (4.1%).

Treatment with semaglutide for 68 weeks resulted in superior and clinically meaningful reduction in body weight and in HbA_{1c} compared to placebo (see Table 5 and

Figure 5).

Table 5 Results of a 68-week trial comparing semaglutide with placebo in patients with obesity or overweight, and type 2 diabetes (STEP 2)

	Wegovy	**Placebo**
Full analysis set (N)	404	403
Body weight		
Baseline (kg)	99.9	100.5
Change (%) from baseline[1,2]	-9.6	-3.4
Difference (%) from placebo[1] [95% CI]	-6.2 [-7.3;-5.2]*	-
Change (kg) from baseline	-9.7	-3.5
Difference (kg) from placebo[1] [95% CI]	-6.1 [-7.2;-5.0]	-
Patients (%) achieving weight loss ≥5%[3]	67.4*	30.2
Patients (%) achieving weight loss ≥10%[3]	44.5*	10.2
Patients (%) achieving weight loss ≥15%[3]	25.0*	4.3
Patients (%) achieving weight loss ≥20%[3]	12.8	2.3
Waist circumference (cm)		
Baseline	114.5	115.5
Change from baseline[1]	-9.4	-4.5
Difference from placebo[1] [95% CI]	-4.9 [-6.0; -3.8]*	-
Cardiometabolic factors		
Systolic blood pressure (mmHg)		
Baseline	130	130
Change from baseline[1]	-3.9	-0.5
Difference from placebo[1] [95% CI]	-3.4 [-5.6; -1.3]**	-
Diastolic blood pressure (mmHg)[4]		
Baseline	80	80
Change from baseline[1]	-1.6	-0.9
Difference from placebo[1] [95% CI]	-0.7 [-2.0; 0.6]	-
Lipids[4]		
Total cholesterol		
Baseline (mmol/L)[5]	4.4	4.4
Change (%) from baseline[1]	-1.4	-0.5
Relative Difference (%) from placebo[1] [95% CI]	-0.9 [-3.6; 2.0]	-
LDL cholesterol		
Baseline (mmol/L)[5]	2.3	2.3
Change (%) from baseline[1]	0.5	0.1
Relative Difference (%) from placebo[1] [95% CI]	0.4 [-4.0; 4.9]	-
HDL cholesterol		

Baseline (mmol/L)[5]	1.2	1.1
Change (%) from baseline[1]	6.9	4.1
Relative Difference (%) from placebo[1] [95% CI]	2.7 [0.3; 5.1]	-
Triglycerides		
Baseline (mmol/L)[5]	1.7	1.8
Change (%) from baseline[1]	-22.0	-9.4
Relative Difference (%) from placebo[1] [95% CI]	-13.9 [-19.0; -8.4]	-
CRP		
Baseline (mg/L)[5]	3.5	3.4
Change (%) from baseline[1]	-48.9	-16.7
Relative Difference (%) from placebo[1] [95% CI]	-38.7 [-46.5; -29.8]	-
Glycaemic factors		
HbA_{1c} (%)		
Baseline	8.1	8.1
Change from baseline[1]	-1.6	-0.4
Difference from placebo[1] [95% CI]	-1.2 [-1.4; -1.1]*	-
Patients (%) achieving HbA1c <7%[3]	77.4	26.0
Patients (%) achieving HbA1c ≤6.5%[3]	65.9	15.1
FPG (mmol/L)[4]		
Baseline	8.5	8.8
Change from baseline[1]	-2.1	-0.1
Difference from placebo[1] [95% CI]	-2.0 [-2.4; -1.7]	-

* p<0.0001 (unadjusted 2-sided) for superiority; **p<0.05 (unadjusted 2-sided) for superiority.

[1] Estimated using an ANCOVA model using multiple imputation based on all data irrespective of discontinuation of randomised treatment or initiation of other anti-obesity medication or bariatric surgery.

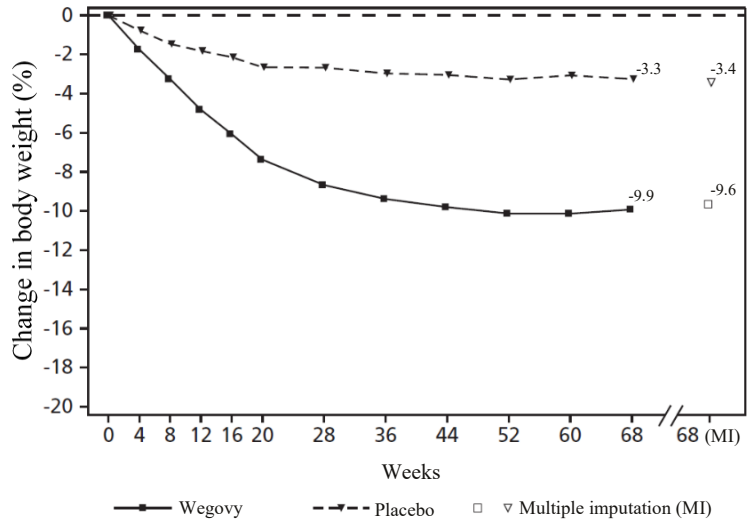
[2] During the trial, randomised treatment was permanently discontinued by 11.6% and 13.9% of patients randomised to Wegovy and placebo, respectively. Assuming that all randomised patients stayed on treatment and did not receive additional anti-obesity therapies, the estimated changes from randomisation to week 68 for body weight based on a Mixed Model for Repeated Measures including all observations until first discontinuation were -10.6% and -3.1% for Wegovy and placebo respectively

[3] Estimated from binary regression model based on same imputation procedure as in primary analysis.

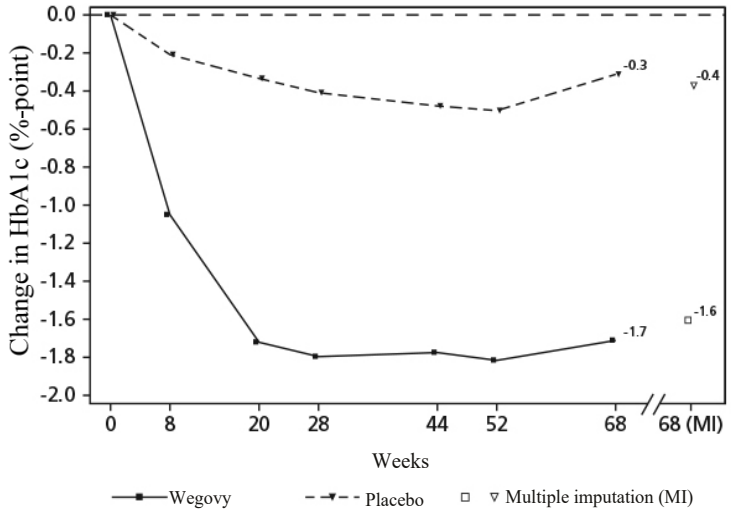
[4] Supportive secondary endpoints

[5] Geometric mean.

Figure 5 STEP 2 - Mean change in body weight (%) and HbA1c (%) from baseline to week 68



Observed values for patients completing each scheduled visit, and estimates with multiple imputations (MI) from retrieved dropouts



HbA1c: Haemoglobin A1c
Observed values for patients completing each scheduled visit, and estimates with multiple imputations (MI) from retrieved dropouts

STEP 3: Weight management with intensive behavioural therapy

In a 68-week double-blind trial, 611 patients with obesity (BMI ≥30 kg/m^2), or with overweight (BMI ≥27 kg/m^2 to <30 kg/m^2) and at least one weight-related comorbidity were randomised to semaglutide or placebo. During the trial, all patients received intensive behavioural therapy (IBT) consisting of an initial 8 week low calorie diet followed by a 60 week hypo-caloric diet, increased physical activity and behavioural counselling. The first 8 weeks included a 1000-1200 kcal/day (4184-5020.8 kJ/day) low-calorie diet provided as meal replacements and portion-controlled meals. From week 8 and onwards, daily caloric targets were defined based on baseline body weight and ranged from 1200 to 1800 kcal/day (5020.8-7531.2 kJ/day). Physical activity was prescribed with a target of 100 minutes physical activity per week, progressing gradually by 25 minutes every 4 weeks and up to 200 minutes/week.

At baseline, patients had a mean BMI of 38.0 kg/m^2 and a mean body weight of 105.8 kg. The mean age was 46 years. There were 76.1% Caucasian/White, 19.0% Black/African American, and 1.8% Asian. A total of 19.8% were Hispanic or Latino. The majority of patients had at least one weight-related comorbidity. These included, but were not limited to, pre-diabetes (49.8%), hypertension

(34.7%), dyslipidaemia (34.7%), knee or hip osteoarthritis (18.7%), asthma/COPD (15.1%), obstructive sleep apnoea (12.6%), liver disease (NAFLD or NASH) (6.1%) and PCOS (5.5%).

Treatment with semaglutide and IBT for 68 weeks resulted in superior and clinically meaningful reduction in body weight compared to placebo (see Table 6 and

Figure *6*). Among patients with pre-diabetes at baseline, 89.5% and 55.0% of patients achieved normo-glycaemic status at end of treatment with semaglutide and placebo, respectively.

Table 6 Results of a 68-week trial comparing semaglutide with placebo in patients with obesity, or overweight and at least one weight-related comorbidity, on IBT (STEP 3)

	Wegovy	**Placebo**
Full analysis set (N)	407	204
Body weight		
Baseline (kg)	106.9	103.7
Change (%) from baseline[1,2]	-16.0	-5.7
Difference (%) from placebo[1] [95% CI]	-10.3 [-12.0;-8.6]*	-
Change (kg) from baseline	-16.8	-6.2
Difference (kg) from placebo[1] [95% CI]	-10.6 [-12.5;-8.8]	-
Patients (%) achieving weight loss ≥5%[3]	84.8*	47.8
Patients (%) achieving weight loss ≥10%[3]	73.0*	27.1
Patients (%) achieving weight loss ≥15%[3]	53.5*	13.2
Patients (%) achieving weight loss ≥20%[3]	33.9	3.5
Waist circumference (cm)		
Baseline	113.6	111.8
Change from baseline[1]	-14.6	-6.3
Difference from placebo[1] [95% CI]	-8.3 [-10.1; -6.6]*	-

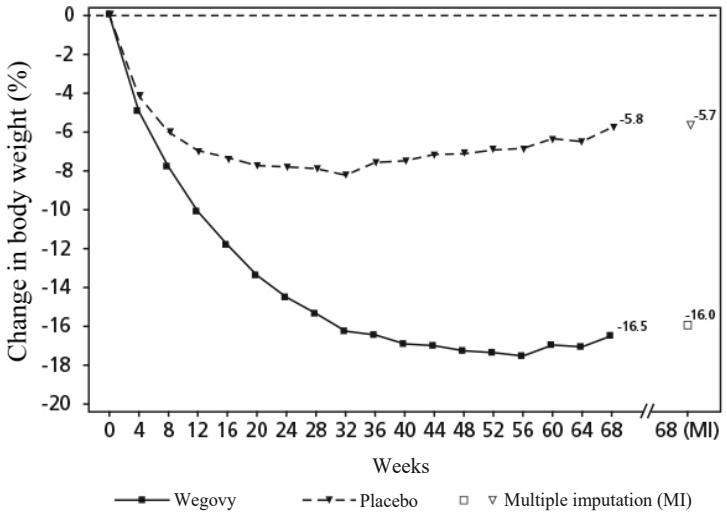
* p<0.001 (unadjusted 2-sided) for superiority.

[1] Estimated using an ANCOVA model using multiple imputation based on all data irrespective of discontinuation of randomised treatment or initiation of other anti-obesity medication or bariatric surgery.

[2] During the trial, randomised treatment was permanently discontinued by 16.7% and 18.6% of patients randomised to semaglutide 2.4 mg and placebo, respectively. Assuming that all randomised patients stayed on treatment and did not receive additional anti-obesity therapies, the estimated changes from randomisation to week 68 for body weight based on a Mixed Model for Repeated Measures including all observations until first discontinuation were -17.6% and -5.0% for semaglutide 2.4 mg and placebo respectively

[3] Estimated from binary regression model based on same imputation procedure as in primary analysis.

Figure 6 STEP 3 - Mean change in body weight (%) from baseline to week 68



Observed values for patients completing each scheduled visit, and estimates with multiple imputations (MI) from retrieved dropouts

STEP 4: Sustained weight management

In a 68-week double-blind trial, 902 patients with obesity (BMI ≥30 kg/m^2), or with overweight (BMI ≥27 kg/m^2 to <30 kg/m^2) and at least one weight-related comorbidity were included. All patients received counselling with regards to diet (500 kcal/2092 kJ deficit per day) relative to the estimated total energy expenditure (TEE) (calculated once at randomisation), and physical activity (150 min of physical activity per week was encouraged). From week 0 to week 20 (run-in), all patients received semaglutide. At week 20 (baseline), 803 patients who had reached the maintenance dose of 2.4 mg were randomised to continue treatment or switch to placebo for the remaining 48 weeks.

At the beginning of the run-in period (week 0), patients had a mean BMI of 38.4 kg/m^2, a mean body weight of 107.2 kg and a mean age of 46 years. At baseline (week 20), patients had a mean BMI of 34.4 kg/m^2 and a mean body weight of 96.1 kg. There were 83.7% Caucasian/White, 13.0% Black/African American, and 2.4% Asian. A total of 7.8% were Hispanic or Latino. The majority of patients had at least one weight-related comorbidity. These included, but were not limited to, pre-diabetes (46.8%), hypertension (37.1%), dyslipidaemia (35.9%), knee or hip osteoarthritis (13.3%), obstructive sleep apnoea (11.7%), asthma/COPD (11.5%), liver disease (NAFLD and NASH) (7.3%) and PCOS (3.9%).

Patients who had reached the maintenance dose of 2.4 mg at week 20 (baseline) and continued treatment with semaglutide for 48 weeks (week 20–68) continued losing weight and had a superior and clinically meaningful reduction in body weight compared to those switched to placebo (see Table 7 and Figure 7). On the other hand, in patients switching to placebo at week 20 (baseline), body weight increased steadily from week 20 to week 68. However, the observed mean body weight was lower at week 68 than at start of the run-in period (week 0) (see Figure 7). Patients treated with semaglutide from week 0 (run-in) to week 68 (end of treatment) achieved a mean change in body weight of -17.4%, with weight loss ≥5% achieved by 87.8%, ≥10% achieved by 78.0%, ≥15% achieved by 62.2% and ≥20% achieved by 38.6% of these patients.

Table 7 Results from the 48-week (week 20 to week 68) randomised period of the trial comparing semaglutide with placebo in patients with obesity, or overweight and a least one weight-related comorbidity (STEP 4)

	Wegovy	**Placebo**
Full analysis set (N)	535	268
Body weight		
Baseline[1] (kg)	96.5	95.4
Change (%) from baseline[1,2,3]	-7.9	6.9
Difference (%) from placebo[2] [95% CI]	-14.8 [-16.0; -13.5]*	-
Change (kg) from baseline	-7.1	6.1
Difference (kg) from placebo[2] [95% CI]	-13.2 [-14.3; -12.0]	-
Waist circumference (cm)		
Baseline	105.5	104.7
Change from baseline[1]	-6.4	3.3
Difference from placebo[2] [95% CI]	-9.7 [-10.9; -8.5]*	-

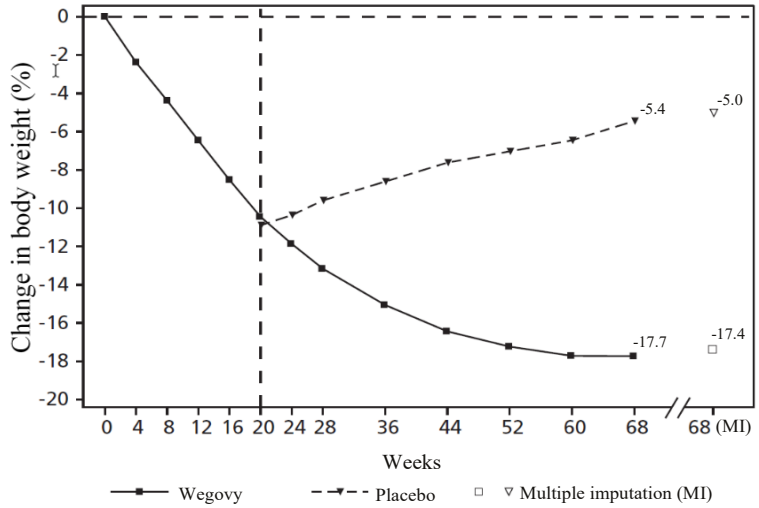
* p<0.0001 (unadjusted 2-sided) for superiority.

[1] Baseline = week 20

[2] Estimated using an ANCOVA model using multiple imputation based on all data irrespective of discontinuation of randomised treatment or initiation of other anti-obesity medication or bariatric surgery.

[3] During the trial, randomised treatment was permanently discontinued by 5.8% and 11.6% of patients randomized to semaglutide 2.4 mg and placebo, respectively. Assuming that all randomised patients stayed on treatment and did not receive additional anti-obesity therapies, the estimated changes from randomisation to week 68 for body weight based on a Mixed Model for Repeated Measures including all observations until first discontinuation were -8.1% and 6.5% for semaglutide 2.4 mg and placebo, respectively.

Figure 7 STEP 4 - Mean change in body weight (%) from week 0 to week 68



Observed values for patients completing each scheduled visit, and estimates with multiple imputations (MI) from retrieved dropouts

Glycaemic control

Treatment with semaglutide significantly improved glycaemic parameters in patients with type 2 diabetes (Table 8).

Table 8 Results on glycaemic factors in STEP 1, 2 and 3

	STEP 1		**STEP 2**		**STEP 3**	
	Semaglutide	**Placebo**	**Semaglutide**	**Placebo**	**Semaglutide**	**Placebo**
Full analysis set (N)	1306	655	404	403	407	204
Glycaemic factors						
HbA_{1c} (mmol/mol)						
Baseline	38.9	39.0	65.3	65.3	39.3	39.5
Change from baseline[1]	−4.9[2]	−1.7[2]	-17.5[3]	-4.1[3]	-5.6	-3.0
Difference from placebo[1] [95% CI]	−3.2 [−3.5; −2.9]	-	-13.5 [-15.5; -11.4]*	-	-2.6 [-3.1; -2.1]	-
FPG (mg/dL)[2]						
Baseline	95.4	94.7	152.7	157.9	93.9	94.0
Change from baseline[1]	−8.4	−0.5	-38.0	-1.4	-6.7	-0.7
Difference from placebo[1] [95% CI]	−7.9 [−9.0; −6.7]	-	-36.6 [-43.2; -30.0]	-	-6.1 [-8.1; -4.0]	-

* p<0.0001 (unadjusted 2-sided) for superiority,
[1] Estimated using an ANCOVA model using multiple imputation based on all data irrespective of discontinuation of randomised treatment or initiation of other anti-obesity medication or bariatric surgery.
[2] Supportive secondary endpoint

Semaglutide improved glycaemic control through sustained reduction of HbA_{1c} and fasting plasma glucose (FPG) levels. Reduction in HbA_{1c} was 1.2% and reduction in FPG was 2.0 mmol/L in STEP 2.

In STEP 2, 78.5% of patients with type 2 diabetes treated with semaglutide achieved an HbA_{1c} <7% compared to 26.5% with placebo. A total of 67.5% of the patients treated with semaglutide achieved an HbA_{1c} ≤6.5% compared to 15.5% with placebo.

In STEP 1, STEP 3 and STEP 5, among those patients with pre-diabetes at baseline, more semaglutide-treated patients had achieved normo-glycaemic status by the end of the trials (week 68 or week 104) compared to placebo-treated patients (STEP 1: 84.1% vs. 47.8%; STEP 3: 89.5% vs. 55.0%; STEP 5: 80% vs. 37%).

Patient-reported outcomes

Semaglutide showed statistically significant improvement in physical functioning scores and more patients with semaglutide achieved a clinically meaningful improvement compared to placebo in STEP 1 and STEP 2. Improvement in physical functioning score with semaglutide compared to placebo was also observed in STEP 3; however, not statistically significant (Table 9). Physical functioning was assessed using both the Short Form-36v2 Health Survey, Acute Version (SF-36v2) and the Impact of Weight on Quality of Life Lite Clinical Trials Version (IWQOL-Lite-CT). Beneficial effects of semaglutide vs placebo were demonstrated in STEP 1 and 2 in all additional scores on SF-36v2 (Role-Physical, Bodily Pain, General Health, Vitality, Social Functioning, Role-Emotional, Mental Health, Physical Component Summary and Mental Component Summary), except for Role-Emotional in STEP 2. Beneficial effects of semaglutide vs. placebo were also demonstrated in STEP 1 and 2 in all additional scores on IWQOL-Lite-CT (Physical, Psychosocial, and Total). In STEP 3, beneficial effects of semaglutide vs. placebo were demonstrated for the following scores in SF-36: General Health, Vitality, Social Functioning, Role-Emotional and Mental Component Summary.

Table 9 Results on physical functioning in STEP 1, 2 and 3

	STEP 1		**STEP 2**		**STEP 3**	
	Wegovy	Placebo	Wegovy	Placebo	Wegovy	Placebo
SF-36v2 Physical Functioning[1]						
Baseline	51.0	50.8	49.2	49.6	51.9	52.1
Change from baseline	2.2	0.4	2.5	1.0	2.4	1.6
Difference from placebo [95% CI]	1.8 [1.2; 2.4]*	-	1.5 [0.4; 2.6]*	-	0.8 [-0.2; 1.9]	

Patients (%) achieving clinically meaningful improvement[2,4]	39.8	24.1	41.0	27.3	36.3	25.5
IWQOL-Lite-CT Physical Function						
Baseline	65.4	64.0	67.1	69.2	-[5]	-[5]
Change from baseline	14.7	5.3	10.1	5.3	-[5]	-[5]
Difference from placebo [95% CI]	9.4 [7.5; 11.4]*	-	4.8 [1.8 ; 7.9]	-	-[5]	
Patients (%) achieving clinically meaningful improvement[3,4]	51.8	28.3	39.6	29.5	-[5]	-[5]

* p<0.0001 (unadjusted 2-sided) for superiority

[1] Norm-based score

[2] Change in norm-based score ≥3.7

[3] Change in score ≥14.6

[4] Estimated from binary regression model based on same imputation procedure as in primary analysis.

[5] IWQOL-Lite-CT was not applied in STEP 3

Supportive clinical trials

STEP 5: long term efficacy

In a 104-week double-blind trial, 304 patients with obesity (BMI ≥30 kg/m^2), or with overweight (BMI ≥27 to <30 kg/m^2) and at least one weight-related comorbidity, were randomised to semaglutide or placebo. All patients were counselled on healthy nutrition and physical activity with the goal of obtaining weight loss.

At baseline, patients had a mean BMI of 38.5 kg/m^2, a mean body weight of 106.0 kg. The mean age was 47 years. There were 93.1% Caucasian/White, 3.9% Black/African American, and 0.7% Asian. A total of 12.8% were Hispanic or Latino. The majority of patients had at least one weight-related comorbidity. These included, but were not limited to, hypertension (38.8%), dyslipidaemia (35.2%), obstructive sleep apnoea (16.8%) and knee osteoarthritis (15.1%).

Treatment with Wegovy for 104 weeks resulted in a superior and clinically meaningful reduction in body weight compared to placebo (see Table 10 and Figure 8). Mean body weight decreased from baseline through to week 68 with Wegovy after which a plateau was reached. With placebo, mean body weight decreased less, and a plateau was reached after approximately 20 weeks of treatment. A higher proportion of patients achieved ≥5%, ≥10%, ≥15% and ≥20% weight loss with Wegovy compared with placebo. Among patients with prediabetes at baseline, 80% and 37% achieved a normo-glycaemic status at end of treatment with Wegovy and placebo, respectively.

Table 10 Results of a 104-week trial comparing Wegovy with placebo in patients with obesity or overweight and at least one weight-related comorbidity (STEP 5)

	Wegovy	**Placebo**
Full analysis set (N)	152	152
Body weight		
Baseline (kg)	105.6	106.5
Change (%) from baseline[1, 2]	-15.2	-2.6
Difference (%) from placebo[1] [95% CI]	-12.6 [-15.3; -9.8]*	-
Change (kg) from baseline	-16.1	-3.2
Difference (kg) from placebo[1] [95% CI]	-12.9 [-16.1; -9.8]	-
Patients (%) achieving weight loss ≥5%[3]	74.7*	37.3
Patients (%) achieving weight loss ≥10%[3]	59.2*	16.8
Patients (%) achieving weight loss ≥15%[3]	49.7*	9.2
Patients (%) achieving weight loss ≥20%[3]	34.5*	4.0
Waist circumference (cm)		
Baseline	115.8	115.7
Change from baseline[1]	-14.4	-5.2
Difference from placebo[1] [95% CI]	-9.2 [-12.2; -6.2]*	-
Systolic blood pressure (mmHg)		
Baseline	126	125
Change from baseline[1]	-5.7	-1.6
Difference from placebo[1] [95% CI]	-4.2 [-7.3; -1.0]*	-

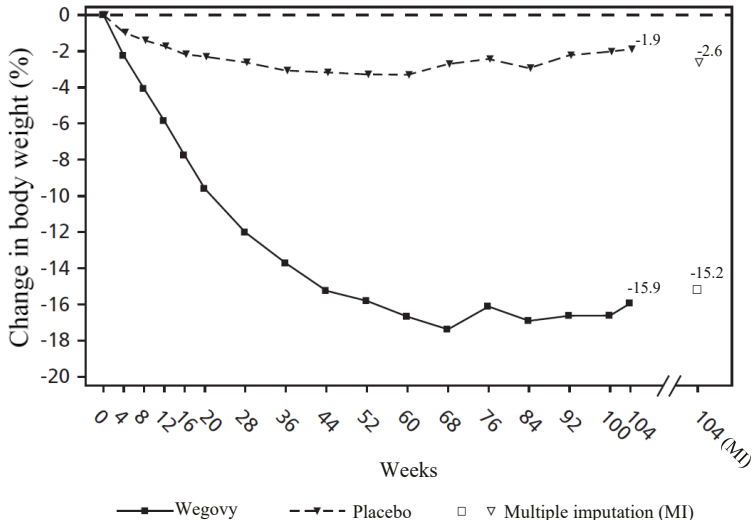
* p<0.0001 (unadjusted 2-sided) for superiority.

[1] Estimated using an ANCOVA model using multiple imputation based on all data irrespective of discontinuation of randomised treatment or initiation of other anti-obesity medication or bariatric surgery.

[2] During the trial, randomised treatment was permanently discontinued by 13.2% and 27.0% of patients randomised to semaglutide and placebo, respectively. Assuming that all randomised patients stayed on treatment and did not receive additional anti-obesity therapies, the estimated changes from randomisation to week 68 for body weight based on a Mixed Model for Repeated Measures including all observations until first discontinuation were -16.7% and -0.6% for semaglutide and placebo, respectively.

[3] Estimated from binary regression model based on same imputation procedure as in primary analysis.

Figure 8 Mean body weight change from baseline to week 104



Observed values for patients completing each scheduled visit, and estimates with multiple imputations (MI) from retrieved dropouts

STEP 8: Semaglutide vs liraglutide

In a 68-week, randomised, open-label, pairwise placebo-controlled trial, 338 patients with obesity (BMI ≥30 kg/m^2), or with overweight (BMI ≥27 to <30 kg/m^2) and at least one weight-related comorbidity, were randomised to semaglutide once weekly, liraglutide 3 mg once daily or placebo. Semaglutide once weekly and liraglutide 3 mg were open-label, but each active treatment group was double-blinded against placebo administered at the same dosing frequency. All patients were on a reduced-calorie diet and increased physical activity throughout the trial.

At baseline, patients had a mean BMI of 37.5 kg/m^2, a mean body weight of 104.5 kg. The mean age was 49 years. There were 73.7% Caucasian/White, 18.9% Black/African American, and 3.8% Asian. A total of 11.5% were Hispanic or Latino. The majority of patients had at least one weight-related comorbidity. These included, but were not limited to, dyslipidaemia (47.6%), hypertension (42.0%), knee osteoarthritis (18.3%) and obstructive sleep apnoea (18.0%).

Treatment with semaglutide once weekly for 68 weeks resulted in superior and clinically meaningful reduction in body weight compared to liraglutide. Mean body weight decreased from baseline through to week 68 with semaglutide, with liraglutide, mean body weight decreased less, and with placebo less yet. 37.4% of the patients treated with semaglutide lost ≥20%, compared to 7.0% treated with liraglutide. Table 11 shows the results of the confirmatory endpoints ≥10%, ≥15% and ≥20% weight loss.

Table 11 Results of a 68-week trial comparing Wegovy with liraglutide in patients with obesity or overweight (STEP 8)

	Wegovy	**Liraglutide 3 mg**
Full analysis set (N)	126	127
Body weight		
Baseline (kg)	102.5	103.7
Change (%) from baseline[1, 2]	-15.8	-6.4
Difference (%) from liraglutide[1] [95% CI]	-9.4 [-12.0;-6.8]*	-
Change (kg) from baseline	-15.3	-6.8
Difference (kg) from liraglutide[1] [95% CI]	-8.5 [-11.2;-5.7]	-
Patients (%) achieving weight loss ≥10%[3]	69.4*	27.2
Patients (%) achieving weight loss ≥15%[3]	54.0*	13.4
Patients (%) achieving weight loss ≥20%[3]	37.4*	7.0

* p<0.0001 (unadjusted 2-sided) for superiority.

[1] Estimated using an ANCOVA model using multiple imputation based on all data irrespective of discontinuation of randomised treatment or initiation of other anti-obesity medication or bariatric surgery.

[2] During the trial, randomised treatment was permanently discontinued by 13.5% and 27.6% of patients randomised to semaglutide and liraglutide, respectively. Assuming that all randomised patients stayed on treatment and did not receive additional anti-obesity therapies, the estimated changes from randomisation to week 68 for body weight based on a Mixed Model for Repeated Measures including all observations until first discontinuation were -16.7% and -6.7% for semaglutide and liraglutide respectively.

[3] Estimated from binary regression model based on same imputation procedure as in primary analysis.

Cardiovascular outcomes

SELECT: Cardiovascular outcome trial in patients with overweight or obesity

SELECT was a randomised, double-blind, placebo-controlled, event driven trial which included 17,604 patients with established cardiovascular disease (67.6 % with prior myocardial infarction only, 17.8 % with prior stroke only and 4.4 % with peripheral arterial disease only; 8.2 % with 2 or more prior CV events) and BMI≥27 kg/m^2. Patients with history of type 1 and type 2 diabetes were excluded. The median time in trial was 41.8 months. The study population consisted of 27.7 % female and 72.3 % male, with a mean age of 61.6 years, including 38.2 % patients ≥ 65 years (n = 6,728) and 7.8 % patients ≥ 75 years (n = 1,366). The mean BMI was 33.3 kg/m^2 and mean body weight was 96.7 kg.

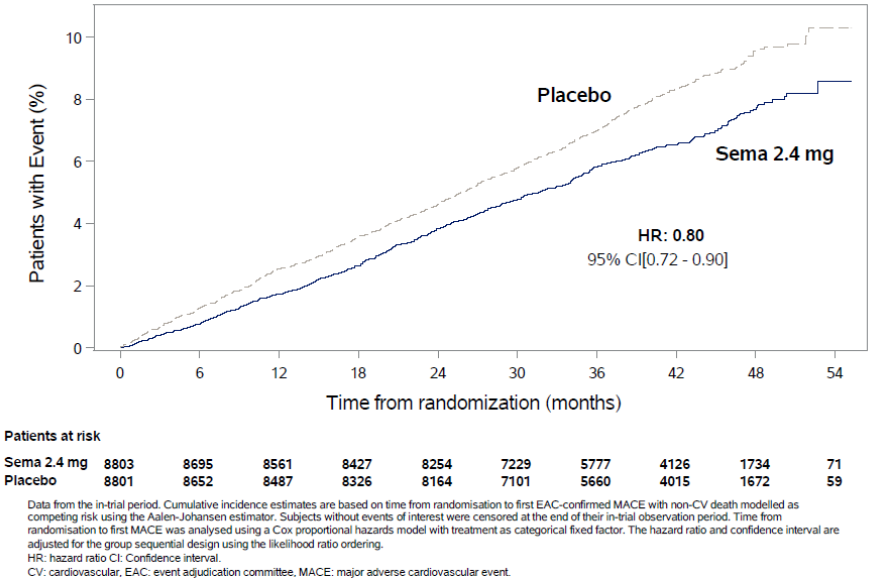
Patients were randomised to either semaglutide 2.4 mg (n=8,803) or placebo (n=8,801) in addition to standard-of-care. At baseline, 92.0 % of patients were receiving cardiovascular medication (70.2 % beta blockers, 45.0 % Angiotensin-Converting Enzyme (ACE) inhibitors, 29.5 % angiotensin receptor blockers and 26.9 % calcium-channel blockers), 90.1 % lipid lowering agents (primarily statins 87.6 %) and 86.2 % anti-platelet agents.

At baseline most patients had cardiovascular related comorbidities including 66.5 % with HbA_{1c} ≥ 5.7% indicative of prediabetes, 24.3 % with chronic heart failure, 81.8 % with hypertension, 46.8 % with inflammation (hsCRP ≥ 2 mg/L) as well as patients with mild (48.7 %), moderate (10.4 %) or severe (0.4 %) renal impairment.

The primary endpoint was the time from randomisation to first occurrence of major adverse cardiovascular events (MACE), defined as a composite endpoint consisting of: CV death, non-fatal myocardial infarction, or non-fatal stroke. Superiority of semaglutide 2.4 mg to placebo was confirmed with hazard ratio 0.80 [0.72; 0.90][95% CI], corresponding to a relative risk reduction of 20 % (see Figure 9). Each component contributed to the reduction of MACE (**Figure *10***). The cardiovascular risk reduction appeared largely independent of weight loss.

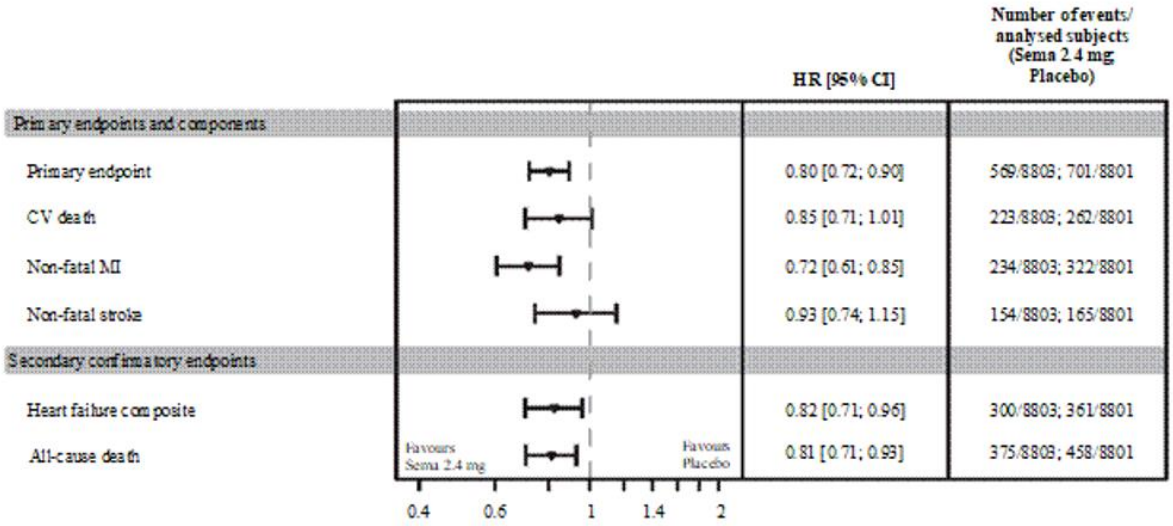
The treatment effect was consistent across all subgroups defined by age, sex, race, ethnicity, region, prior CV disease (MI, stroke, PAD, or any combination thereof), BMI, chronic heart failure, normoglycemia/prediabetes, and renal function.

Figure 9 Cumulative incidence function plot – Time from randomisation to first MACE



Data from the in-trial period. Cumulative incidence estimates are based on time from randomisation to first EAC-confirmed MACE with non-CV death modelled as competing risk using the Aalen-Johansen estimator. Subjects without events of interest were censored at the end of their in-trial observation period. Time from randomisation to first MACE was analysed using a Cox proportional hazards model with treatment as categorical fixed factor. The hazard ratio and confidence interval are adjusted for the group sequential design using the likelihood ratio ordering.
HR: hazard ratio CI: Confidence interval.
CV: cardiovascular, EAC: event adjudication committee, MACE: major adverse cardiovascular event.

Figure 10 Forest plot of time from randomisation to first MACE, MACE components and secondary confirmatory endpoints



Data from the in-trial period. Time from randomisation to each endpoint was analysed using a Cox proportional hazards model with treatment as categorical fixed factor. Subjects without events of interest were censored at the end of their in-trial period. For the primary endpoint the HR and CI were adjusted for the group sequential design using likelihood ratio ordering. Secondary endpoints are not under multiplicity control. CV death includes both cardiovascular death and undetermined cause of death.
HR: hazard ratio CI: Confidence interval.
CV: cardiovascular, MI: myocardial infarction.

Risk of having an HbA1c ≥6.5% (indicating development of diabetes) was lower for the semaglutide 2.4 mg group than for the placebo group with hazard ratio 0.27 [0.24; 0.31][95% CI]. Furthermore, semaglutide 2.4 mg had beneficial effects on other cardiovascular risk factors including systolic and diastolic blood pressure, plasma lipids (LDL, HDL, and triglycerides), body weight and waist circumference (see supportive efficacy endpoints results in Table 12).

Table 12 SELECT – Cardiovascular risk factors assessed at week 104

	Wegovy	**Placebo**
Full analysis set (N)	8803	8801
Cardiometabolic factors		
Systolic blood pressure (mmHg)		

Baseline Mean (SD)	131.0 (15.6)	130.9 (15.3)
Change from baseline[1]	-3.82	-0.51
Difference from placebo [95% CI][1]	-3.1 [-3.75; -2.88]	-
Diastolic blood pressure (mmHg)		
Baseline Mean (SD)	79.4 (10.0)	79.2 (9.9)
Change from baseline[1]	-1.02	-0.47
Difference from placebo [95% CI][1]	-0.55 [-0.83; -0.27]	-
Lipids		
Total cholesterol		
Baseline (mmol/L) Geom. Mean (CV)	4.03 (25.82)	4.04 (25.41)
Change (%) from baseline[1]	-4.63	-1.92
Relative difference (%) from placebo[1]	-2.77 [-3.37; -2.16]	-
LDL cholesterol		
Baseline (mmol/L) Geom. Mean (CV)	2.03 (43.70)	2.03 (43.56)
Change (%) from baseline[1]	-5.25	-3.14
Relative difference (%) from placebo [95% CI][1]	-2.18 [-3.22; -1.12]	-
HDL cholesterol		
Baseline (mmol/L) Geom. Mean (CV)	1.14 (25.52)	1.15 (25.02)
Change (%) from baseline[1]	4.86	0.59
Relative difference (%) from placebo [95% CI][1]	4.24 [3.70; 4.79]	-
Triglycerides		
Baseline (mmol/L) Geom. Mean (CV)	1.56 (51.75)	1.57 (50.84)
Change (%) from baseline[1]	-18.34	-3.20
Relative difference (%) from placebo [95% CI][1]	-15.64 [-16.7; -14.6]	-
hsCRP		
Baseline (mmol/L) Geom. Mean (CV)	1.96 (162.90)	1.91 (158.22)
Change (%) from baseline[1]	-39.12	-2.08
Relative difference (%) from placebo [95% CI][1]	-37.82 [-39.7; -35.9]	-
Weight-related CV risk factors		
Body weight (%)		
Baseline (kg) Mean (SD)	96.53 (17.52)	96.82 (17.80)
Change from baseline[1]	-9.39	-0.88
Difference from placebo [95% CI][1]	-8.51 [-8.75; -8.27]	-
Waist circumference (cm)		
Baseline Mean (SD)	111.3 (13.1)	111.4 (13.1)
Change from baseline[1]	-7.56	-1.03
Difference from placebo [95% CI][1]	-6.53 [-6.79; -6.27]	-

Glycaemic factors		
HbA_{1c} (%)		
Baseline Mean (SD)	5.78 (0.34)	5.78 (0.33)
Change from baseline[1]	-0.31	0.01
Difference from placebo [95% CI][1]	-0.32 [-0.33; -0.31]	-
Glycaemic status		
Patients (%) with pre-diabetes at baseline[2]	64.8	64.3
Patients (%) achieving normo-glycaemia in patients with pre-diabetes at baseline[3]	65.7	21.4

[1]The responses were analysed using an ANCOVA with treatment as fixed factor and baseline value as covariate. Before analysis, missing data were multiple imputed. The imputation model (linear regression) was done separately for each treatment arm and included baseline value as a covariate and was fitted to all subjects with a measurement regardless of treatment status at week 104. The fitted model was used to impute values for subjects without a measurement at week 104. Mean estimates were adjusted according to observed baseline distribution.

[2] Pre-diabetes is determined as screening 5.7% <= HbA_{1c} <6.5%

[3] Missing data for HbA_{1c} at week 104 were multiple imputed, using linear regression for each treatment arm with baseline value as covariate, and fitted to subjects with a measurement at week 104.

Semaglutide showed improvements in patient reported outcomes (EuroQoL five dimensions five level (EQ-5D-5L) and (EQ 5D VAS)).

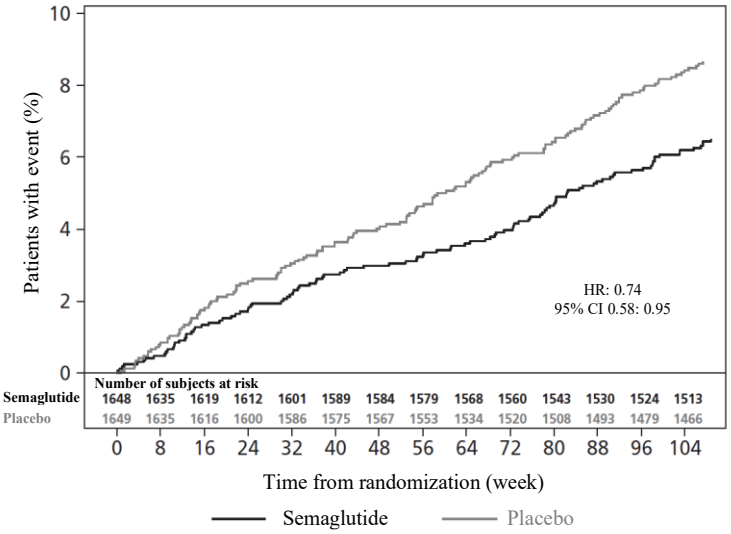
SUSTAIN 6: Cardiovascular outcome trial in patients with type 2 diabetes unrelated to weight loss

In the SUSTAIN 6 trial for OZEMPIC (semaglutide) for a type 2 diabetes indication unrelated to weight loss, 3,297 patients with type 2 diabetes and at high risk of cardiovascular events were randomised to semaglutide s.c. 0.5 mg or 1 mg once-weekly or placebo in addition to standard-of-care. The treatment duration was 104 weeks. The mean age was 65 years and the mean BMI was 33 kg/m^2.

The primary endpoint was the time from randomisation to first occurrence of a major adverse cardiovascular event (MACE): cardiovascular death, non-fatal myocardial infarction or non-fatal stroke. The secondary endpoint was time from randomisation to first occurrence of an expanded composite cardiovascular outcome, defined as MACE, revascularisation (coronary and peripheral), unstable angina requiring hospitalisation or hospitalisation for heart failure. The total number of the primary component MACE endpoint was 254, including 108 (6.6%) with semaglutide and 146 (8.9%) with placebo.

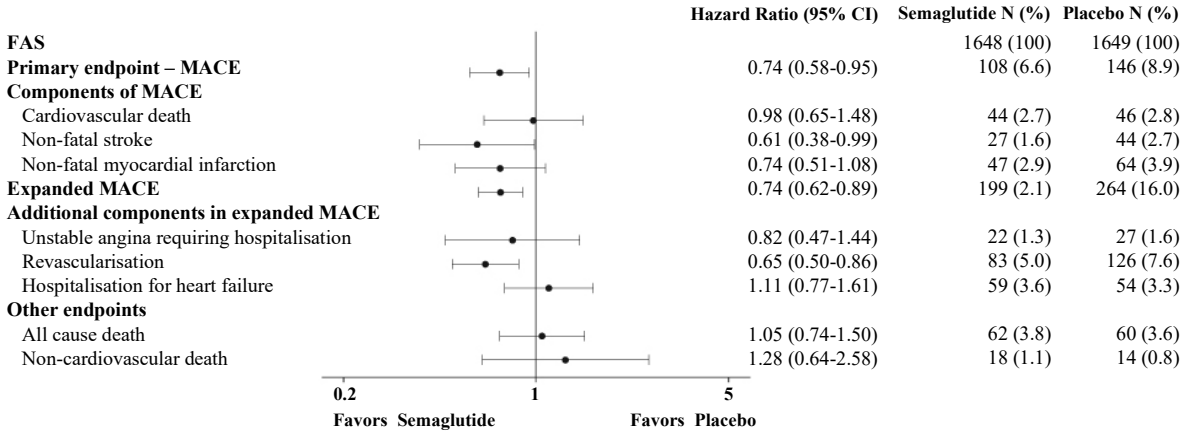
Treatment with semaglutide reduced the rate of MACE vs placebo with a risk reduction of 26%, HR 0.74, [0.58, 0.95] [95% CI]. This was mainly driven by a significant (39%) decrease in the rate of non-fatal stroke and a non-significant (26%) decrease in non-fatal myocardial infarction with no difference in cardiovascular death (see Figure 11).

Figure 11 Kaplan-Maier plot of time to first occurrence of the composite outcome: Cardiovascular death, non-fatal myocardial infarction or non-fatal stroke (SUSTAIN 6)



Semaglutide also significantly reduced the risk of a composite of coronary or peripheral revascularisation. See Figure 12 for results on primary and secondary cardiovascular endpoints.

Figure 12 Forest plot: Analyses of each individual cardiovascular event types (SUSTAIN 6)



Paediatric population

STEP Teens: Weight management in adolescents

In a 68-week double-blind trial 201 pubertal adolescents, ages 12 to <18 years, with obesity or overweight and at least one weight-related comorbidity were randomised 2:1 to semaglutide or placebo. All patients were on a reduced-calorie diet and increased physical activity throughout the trial.

At baseline, patients had a mean BMI of 37.0 kg/m^2 and a mean body weight of 107.5 kg. The mean age of patients was 15.4 years. There were 37.8% males, 79.1% Caucasian/White, 8.0% Black/African American and 2.0% Asian. A total of 10.9% were Hispanic or Latino.

At end of treatment (week 68), the improvement in BMI with semaglutide was superior and clinically meaningful compared with placebo (see Table 13 and Figure 13). Furthermore, a higher proportion

of patients achieved ≥5%, 10%, ≥15% and ≥20% weight loss with semaglutide compared with placebo (see Table 13). Also, improvement in weight category was seen for a larger proportion of patients with semaglutide (71.8%) compared to placebo (21.0%). Improvement was defined as changing from a higher to a lower obesity class, or to overweight or normal weight. At end of treatment, a higher proportion of patients with semaglutide (53.7%) changed at least 2 categories compared to placebo (3.8%).

Greater reductions in absolute BMI, BMI standard deviation score (SDS), BMI percentage of the 95th percentile (sex- and age-specific growth charts) and body weight were observed with semaglutide compared to placebo at week 68.

Table 13 Results of a 68-week trial comparing semaglutide with placebo in adolescents ages 12 years and above with obesity, or overweight and at least one weight-related comorbidity (STEP TEENS)

	Wegovy	**Placebo**
Full analysis set (N)	134	67
BMI		
Baseline (BMI)	37.7	35.7
Change (%) from baseline[1,3]	-16.1	0.6
Difference (%) from placebo[1] [95% CI]	-16.7 [-20.3; -13.2]*	-
Baseline (BMI SDS)	3.4	3.1
Change from baseline in BMI SDS[1]	-1.1	-0.1
Difference from placebo[1] [95% CI]	-1.0 [-1.3; -0.8]	-
Baseline (BMI % of the 95th percentile)	133.8	127.8
Change from baseline in BMI percentage of the 95th percentile[1]	-24.6	-4.2
Difference from placebo[1] [95% CI]	-20.4 [-25.0; -15.8]	-
Body Weight		
Baseline (kg)	109.9	102.6
Change (%) from baseline[1]	-14.7	2.8
Difference (%) from placebo[1] [95% CI]	-17.4 [-21.1; -13.8]	-
Change (kg) from baseline[1]	-15.3	2.4
Difference (kg) from placebo[1] [95% CI]	-17.7 [-21.8; -13.7]	-
Patients (%) achieving weight loss ≥5%[4]	72.5*	17.7
Patients (%) achieving weight loss ≥10%[4]	61.8	8.1
Patients (%) achieving weight loss ≥15%[4]	53.4	4.8
Patients (%) achieving weight loss ≥20%[4]	37.4	3.2
Waist circumference (cm)[5]		
Baseline	111.9	107.3
Change from baseline[1]	-12.7	-0.6
Difference from placebo[1] [95% CI]	-12.1 [-15.6; -8.7]	-
Cardiometabolic factors[5]		
Systolic blood pressure (mmHg)		
Baseline	120	120
Change from baseline[1]	-2.7	-0.8
Difference from placebo[1] [95% CI]	-1.9 [-5.0; 1.1]	-
Diastolic blood pressure (mmHg)		

Baseline	73	73
Change from baseline[1]	-1.4	-0.8
Difference from placebo[1] [95% CI]	-0.6 [-3.0; 1.8]	-
Lipids[5]		
Total cholesterol		
Baseline (mmol/L)	4.1	4.2
Change (%) from baseline[1]	-8.3	-1.4
Relative Difference (%) from placebo[1] [95% CI]	-7.1 [-10.5; -3.5]	-
LDL cholesterol		
Baseline (mmol/L)	2.3	2.4
Change (%) from baseline[1]	-9.9	-3.6
Relative Difference (%) from placebo[1] [95% CI]	-6.6 [-11.3; -1.6]	-
HDL cholesterol		
Baseline (mmol/L)	1.1	1.1
Change (%) from baseline[1]	8.0	3.2
Relative Difference (%) from placebo[1] [95% CI]	4.7 [-1.0; 10.7]	-
Triglycerides		
Baseline (mmol/L)	1.3	1.2
Change (%) from baseline[1]	-28.4	2.6
Relative Difference (%) from placebo[1] [95% CI]	-30.2 [-38.0; -21.5]	-
Glycaemic factors[5]		
HbA_{1c} (%)[2]		
Baseline	5.5	5.4
Change from baseline[1]	-0.4	-0.1
Difference from placebo[1] [95% CI]	-0.2 [-0.3; -0.1]	-
FPG (mmol/L)[2]		
Baseline	5.0	5.0
Change from baseline[1]	-0.2	-0.02
Difference from placebo[1] [95% CI]	-0.2 [-0.3; -0.03]	-
ALT		
Baseline (U/L)	23	20
Change (%) from baseline[1]	-18.3	-4.9
Relative Difference (%) from placebo[1] [95% CI]	-14.1 [-25.2; -1.4]	-

* p<0.0001 (unadjusted 2-sided) for superiority.

[1] Estimated using an ANCOVA model using multiple imputation based on all data irrespective of discontinuation of randomised treatment or initiation of other anti-obesity medication or bariatric surgery.

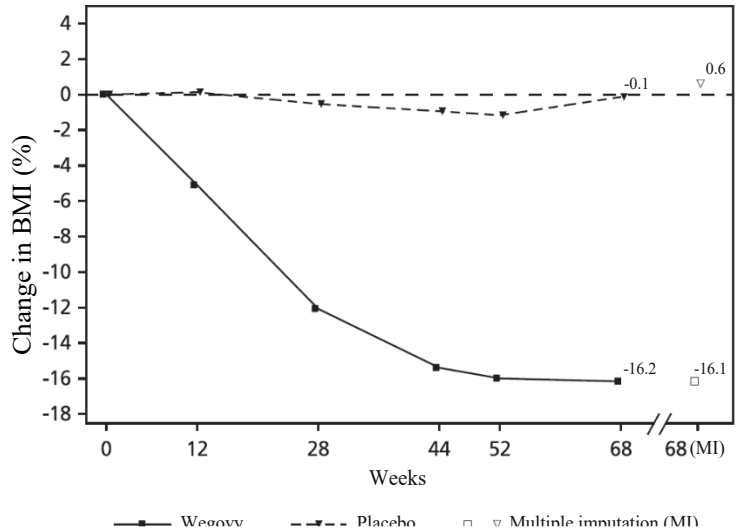
[2] The numbers are for patients without type 2 diabetes.

[3] During the trial, randomised treatment was permanently discontinued by 10.4% and 10.4% of patients randomised to semaglutide 2.4 mg and placebo, respectively. Assuming that all randomised patients stayed on treatment and did not receive additional anti-obesity therapies, the estimated changes from randomisation to week 68 for BMI based on a Mixed Model for Repeated Measures including all observations until first discontinuation were -17.9% and 0.6% for semaglutide 2.4 mg and placebo respectively

[4] Estimated from logistic regression model based on same imputation procedure as in primary analysis.

[5] Supportive secondary endpoint.

Figure 13 STEP TEENS – Mean change in BMI (%) from baseline to week 68



Observed values for patients completing each scheduled visit, and estimates with multiple imputations (MI) from retrieved dropouts

In STEP TEENS, the clinical outcome assessments with the IWQOL-Kids questionnaire, improved (higher score) in favour of semaglutide at end of treatment (week 68) compared to baseline for all 4 domain scores and the total score. The estimated treatment differences for the physical comfort score and the total score were statistically significant in favour of semaglutide compared to placebo (Table 14**Table *14***).

Table 14 Results on physical comfort score in STEP TEENS (Exploratory endpoint)

	Wegovy	**Placebo**
Physical comfort score		
Change from baseline	6.4	-0.3
Difference from placebo [95% CI]	6.6 [2.0; 11.2]	-
Total score		
Change from baseline	5.2	1.0
Difference from placebo [95% CI]	4.3 [0.2; 8.3]	-

5.2 Pharmacokinetic properties

Compared to native GLP-1, semaglutide has a prolonged half-life of around 1 week making it suitable for once weekly subcutaneous administration. The principal mechanism of protraction is albumin binding, which results in decreased renal clearance and protection from metabolic degradation. Furthermore, semaglutide is stabilised against degradation by the DPP-4 enzyme.

Absorption

The average semaglutide steady state concentration following s.c. administration of the semaglutide maintenance dose was approximately 75 nmol/L in patients with overweight (BMI ≥27 kg/m^2 to <30 kg/m^2) or obesity (BMI ≥30 kg/m^2). The steady state exposure of semaglutide increased proportionally with doses to 2.4 mg once weekly.

Similar exposure was achieved with s.c. administration of semaglutide in the abdomen, thigh, or upper arm. The absolute bioavailability of semaglutide was 89%.

Distribution

The mean volume of distribution of semaglutide following s.c. administration in patients with overweight or obesity was approximately 12.4 L. Semaglutide is extensively bound to plasma albumin (>99%).

Metabolism

Semaglutide is metabolised through proteolytic cleavage of the peptide backbone and sequential beta-oxidation of the fatty acid side chain.

Excretion

Semaglutide has pharmacokinetic properties compatible with once-weekly administration, with an elimination half-life of approximately 1 week.

The primary excretion routes of semaglutide-related material are via the urine and faeces. Approximately 3% of the absorbed dose was excreted in the urine as intact semaglutide.

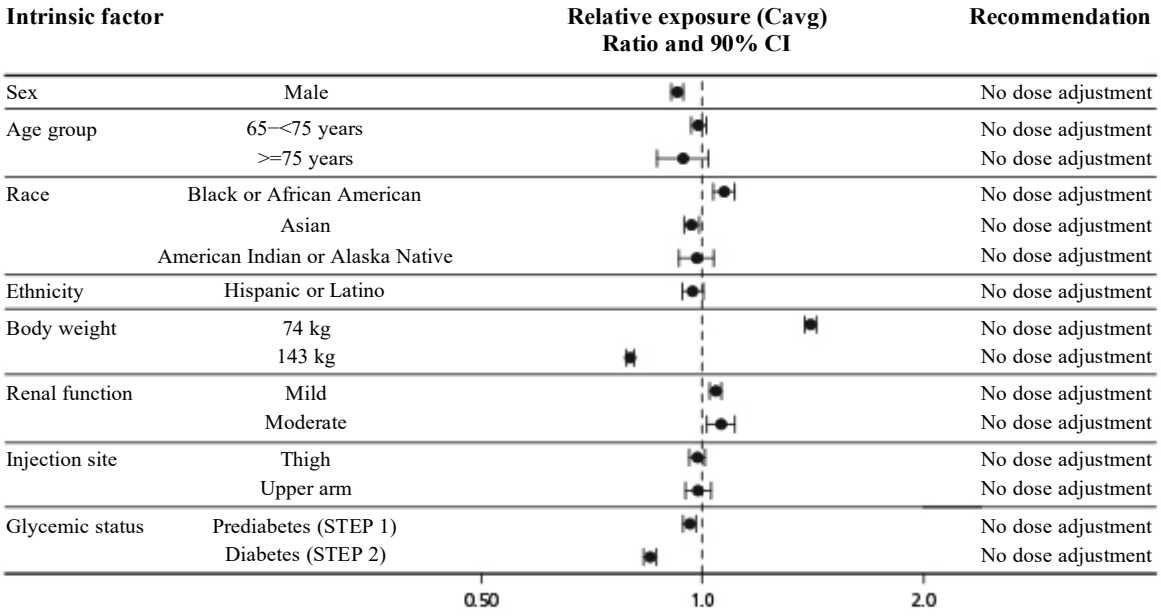
Clearance of semaglutide in patients with overweight (BMI ≥27 kg/m^2 to <30 kg/m^2) or obesity (BMI ≥30 kg/m^2) was approximately 0.05 L/h. With an elimination half-life of approximately 1 week, semaglutide will be present in the circulation for approximately 7 weeks after the last dose of 2.4 mg.

Special populations

Based on a population pharmacokinetic analysis, age, sex, race, and ethnicity, and renal impairment do not have a clinically meaningful effect on the pharmacokinetics of semaglutide. The exposure of semaglutide decreases with an increase in body weight. However, semaglutide 2.4 mg provides adequate systemic exposure over the body weight range of 54.4-245.6 kg evaluated in the clinical trials. The effects of intrinsic factors on the pharmacokinetics of semaglutide are shown in

Figure *14*.

Figure 14 Impact of intrinsic factors on semaglutide exposure



Data are steady-state dose-normalised average semaglutide exposures relative to a reference subject profile (non-Hispanic or Latino, normoglycaemic (STEP 1) white female aged 18-<65 years, with a body weight of 110 kg and normal renal function, who injected in the abdomen). Body weight test categories (74 and 143 kg) represent the 5% and 95% percentiles in the data set.

Age

Age had no effect on the pharmacokinetics of semaglutide based on data from phase 3 trials including patients 18–86 years of age.

Sex

Gender had no effect on the pharmacokinetics of semaglutide.

Race

Race (White, Black or African-American, Asian) had no effect on the pharmacokinetics of semaglutide.

Ethnicity

Ethnicity (Hispanic or Latino) had no effect on the pharmacokinetics of semaglutide.

Body weight

Body weight had an effect on the exposure of semaglutide. Higher body weight was associated with lower exposure. The 2.4 mg weekly dose of semaglutide provided adequate systemic exposures over the body weight range of 54.4−245.6 kg evaluated for exposure response in the clinical trials.

Renal impairment

Renal impairment did not impact the pharmacokinetics of semaglutide in a clinically relevant manner. This was shown with a single dose of 0.5 mg semaglutide for patients with different degrees

of renal impairment (mild, moderate, severe or patients in dialysis) compared with patients with normal renal function. This was also shown for patients with overweight (BMI ≥27 kg/m^2 to <30 kg/m^2) or obesity (BMI ≥30 kg/m^2) and mild to moderate renal impairment based on data from phase 3a trials.

Hepatic impairment
Hepatic impairment did not have any impact on the exposure of semaglutide. The pharmacokinetics of semaglutide were evaluated in patients with different degrees of hepatic impairment (mild, moderate, severe) and compared with patients with normal hepatic function in a study with a single dose of 0.5 mg semaglutide.

Paediatrics
Semaglutide has not been studied in children below 12 years of age. Pharmacokinetic properties for semaglutide 2.4 mg were assessed in a clinical trial for adolescent patients with obesity or overweight and at least one weight-related comorbidity ages 12 to <18 years (124 patients, body weight 61.6-211.9 kg). The semaglutide exposure in adolescents was similar to that in adults with obesity or overweight.

5.3 Preclinical safety data

Genotoxicity
Semaglutide was not mutagenic in the bacterial reverse mutation assay, and was not clastogenic in vitro (cytogenetic assay in human lymphocytes), or in vivo (rat bone marrow micronucleus test).

Carcinogenicity
Non-lethal thyroid C-cell tumours observed in rodents are a class effect for GLP-1 receptor agonists. In 2-year carcinogenicity studies in rats and mice, semaglutide caused thyroid C-cell tumours at clinically relevant exposures (at ≥ 1.2× the clinical AUC in mice [based on the plasma AUC at the maximum recommended human dose of 2.4 mg/week] and subclinical exposures in rats; a no effect level was not established in either species). No other treatment-related tumours were observed. The rodent C-cell tumours are caused by a non-genotoxic, specific GLP-1 receptor mediated mechanism to which rodents are particularly sensitive. The relevance for humans is considered to be low, but cannot be completely excluded.

Juvenile toxicity
In juvenile rats, semaglutide caused delayed sexual maturation in both males and females. These delays had no impact upon fertility and reproductive capacity of either sex, or on the ability of the females to maintain pregnancy.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Dibasic sodium phosphate, dihydrate
Propylene glycol
Phenol (as preservative)
Hydrochloric acid (for pH adjustment)
Sodium hydroxide (for pH adjustment)
Water for injection

6.2 Incompatibilities

Substances added to Wegovy may cause degradation of semaglutide. Wegovy must not be mixed with other medicinal products, e.g. infusion fluids.

6.3 Shelf life

Before use: 3 years.
After first use: 6 weeks. Store below 30°C or in a refrigerator (2°C to 8°C).

6.4 Special precautions for storage

Do not freeze Wegovy FlexTouch and do not use Wegovy FlexTouch if it has been frozen.

Keep the pen cap on in order to protect from light.

Wegovy FlexTouch should be protected from excessive heat.

Wegovy FlexTouch should not be used if it does not appear clear and colourless.

The Wegovy FlexTouch pen is for use by one person only.

Before first use: Store in a refrigerator (2°C to 8°C). Keep away from the cooling element.

After first use: May be stored unrefrigerated for up to 42 days at a temperature not above 30°C.

Always remove the injection needle after each injection and store the pen without a needle attached. This may prevent blocked needles, contamination, infection, leakage of solution and inaccurate dosing.

6.5 Nature and contents of container

The primary packaging contains a 1.5 mL or 3 mL glass cartridge (Type I glass) closed at the one end with a rubber plunger (Type I/chlorobutyl) and at the other end with an aluminium cap with a rubber disc (Type I/bromobutyl/isoprene) inserted.

The cartridge is assembled into a pre-filled, multi-dose disposable pen made of polypropylene polyoxymethylene, polycarbonate and acrylonitrile butadiene styrene.

There are five strengths of the Wegovy FlexTouch pen:

- Wegovy 0.25 mg/dose solution for injection in pre-filled pen delivers 4 doses of 0.25 mg. This pen is intended to be used for dose escalation. The pen contains 1.5 mL solution.
- Wegovy 0.5 mg/dose solution for injection in pre-filled pen delivers 4 doses of 0.5 mg. This pen is intended to be used for dose escalation. The pen contains 1.5 mL solution.
- Wegovy 1 mg/dose for injection in pre-filled pen delivers 4 doses of 1 mg. This pen is to be used for dose escalation. The pen contains 3 mL solution.
- Wegovy 1.7 mg/dose for injection in pre-filled pen delivers 4 doses of 1.7 mg. This pen is to be used for dose escalation. The pen contains 3.0 mL solution

- Wegovy 2.4 mg/dose solution for injection in pre-filled pen delivers 4 doses of 2.4 mg. This pen is intended to be used for maintenance treatment. The pen contains 3.0 mL solution.

NovoFine® Plus needles are included in the Wegovy FlexTouch package.

Wegovy can be administered with 30G, 31G, and 32G disposable needles up to a length of 8 mm.

Pack size
Pack size of 1 pre-filled pen and 4 disposable NovoFine Plus needles.

6.6 Special precautions for disposal

The patient should be advised to discard the injection needle in accordance with local requirements after each injection and store the Wegovy FlexTouch pen without an injection needle attached.

After the final dose of Wegovy FlexTouch the pen should be discarded in accordance with local requirements.

After having injected the 4 doses, there might still be solution left in the pen despite having administered correctly. Any solution left is insufficient for a dose and the pen should be disposed of.

7 MEDICINE SCHEDULE

Prescription Medicine

8 SPONSOR

Novo Nordisk Pharmaceuticals Ltd
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Pakuranga
Auckland

Tel: 0800 733 737

9 DATE OF FIRST APPROVAL

20 March 2025

10 DATE OF REVISION OF THE TEXT

22 June 2026

SUMMARY TABLE OF CHANGES

Section changed	Summary of new information
4.4	Warning added for patients with gastroparesis Warning added on dehydration
4.8	Addition of post-market adverse effects: alopecia Description of selected adverse reactions: add cholecystitis to subsection title Information added for patients with gastroparesis