

Obesity

Focus on Weight Loss Medications

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The Center for Weight Management and Wellness (CWMW) at Brigham and Women's Hospital offers comprehensive, multidisciplinary care for patients seeking treatment of their overweight and obesity. Dr. Zeb Ijaz Saeed is a board-certified obesity medicine specialist who is committed to advancing the care and outcomes of individuals living with obesity and diabetes.

Dr. Saeed has contributed to NIH-funded research focused on identifying novel biomarkers for diabetes secondary to acute and chronic pancreatitis and pancreatic cancer, as well as being involved in a study identifying new genetic causes of rare and atypical forms of diabetes. She is currently involved in clinical trials evaluating pharmacologic therapies aimed at improving cardiometabolic health in individuals with obesity and/or diabetes.

Disclosures

Research support from Amylyx Pharmaceuticals (site Principal Investigator).

Objectives

Upon completion, participants will be able to:

- Recognize obesity as a chronic, multifactorial disease with strong biological underpinnings.
- Apply evidence-based BMI criteria to determine eligibility for anti-obesity pharmacotherapy.
- Describe the mechanisms of action of key anti-obesity medications, including semaglutide and tirzepatide.
- Implement appropriate strategies for initiating and managing treatment with semaglutide and tirzepatide in clinical practice.

Obesity and Overweight is a
multifactorial, biologically rooted
disease with strong genetic
underpinnings.

Biology of Obesity - Genetics

- Obesity is not simply about willpower or lifestyle choices
- Chronic disease
- Complex interplay of genetics and environment
- Heritability: 40% and 70%

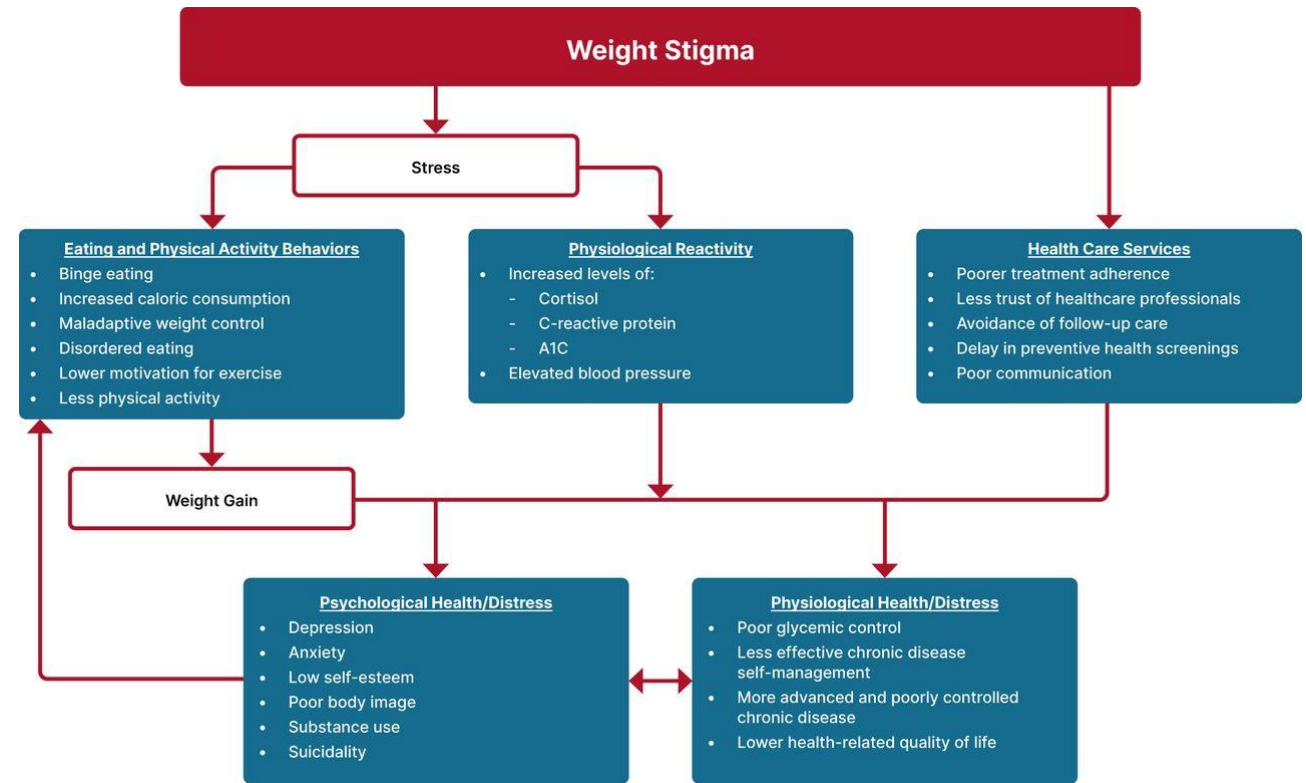
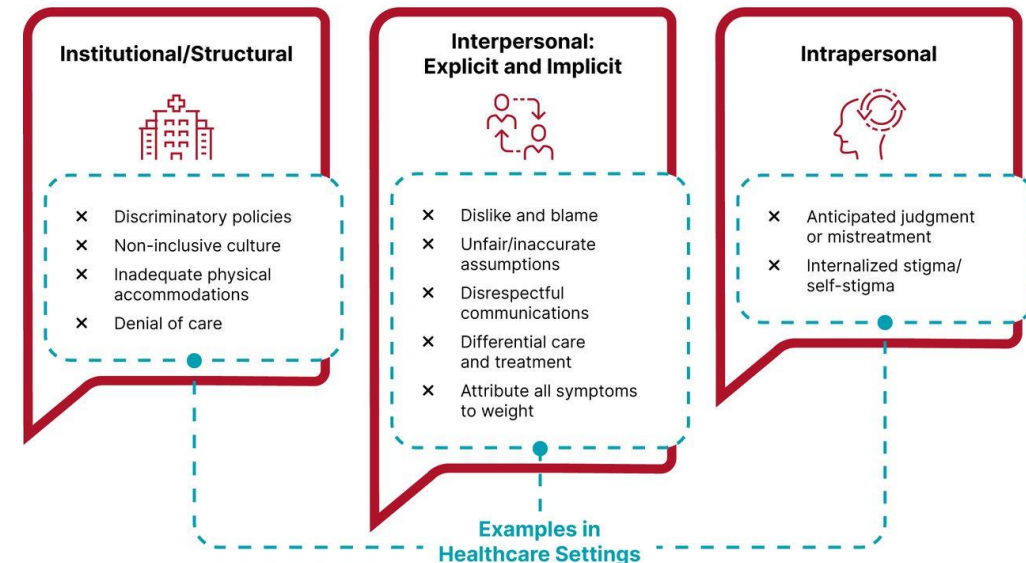


Importance for recognition of biology of obesity

Awareness of weight bias and stigma:
69% women with obesity report experiencing weight bias from doctors, and 52% from nurses.

People-first/people-centered language

Examples of Weight Bias and Stigma at Multiple Levels



Puhl RM, Phelan SM, Nadglowski J, Kyle TK. Overcoming Weight Bias in the Management of Patients With Diabetes and Obesity. Clin Diabetes. 2016
Raveendhara R Bannuru - Weight stigma and bias: standards of care in overweight and obesity—2025: BMJ Open Diabetes Research & Care 202;

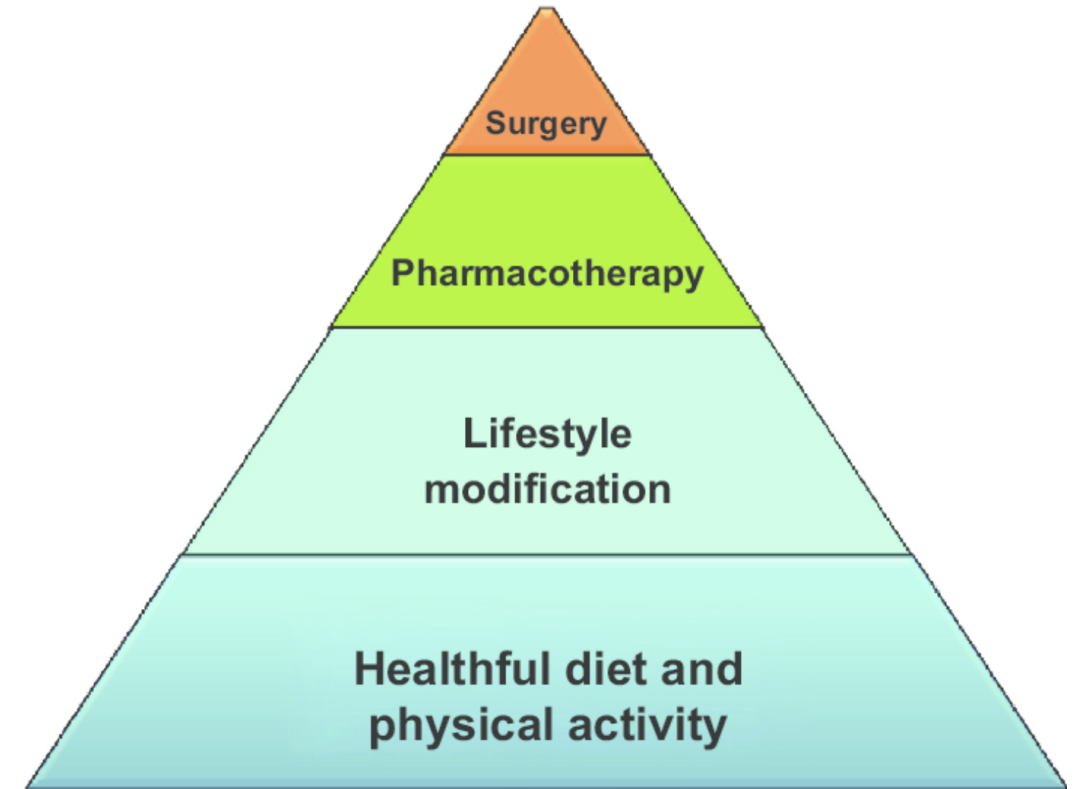
Treatment of Obesity is multi-faceted, inter-disciplinary and longitudinal

Pyramid of weight management


Lifestyle modifications

No single dietary pattern superior

Key → Consistency



Anti-Obesity Medications

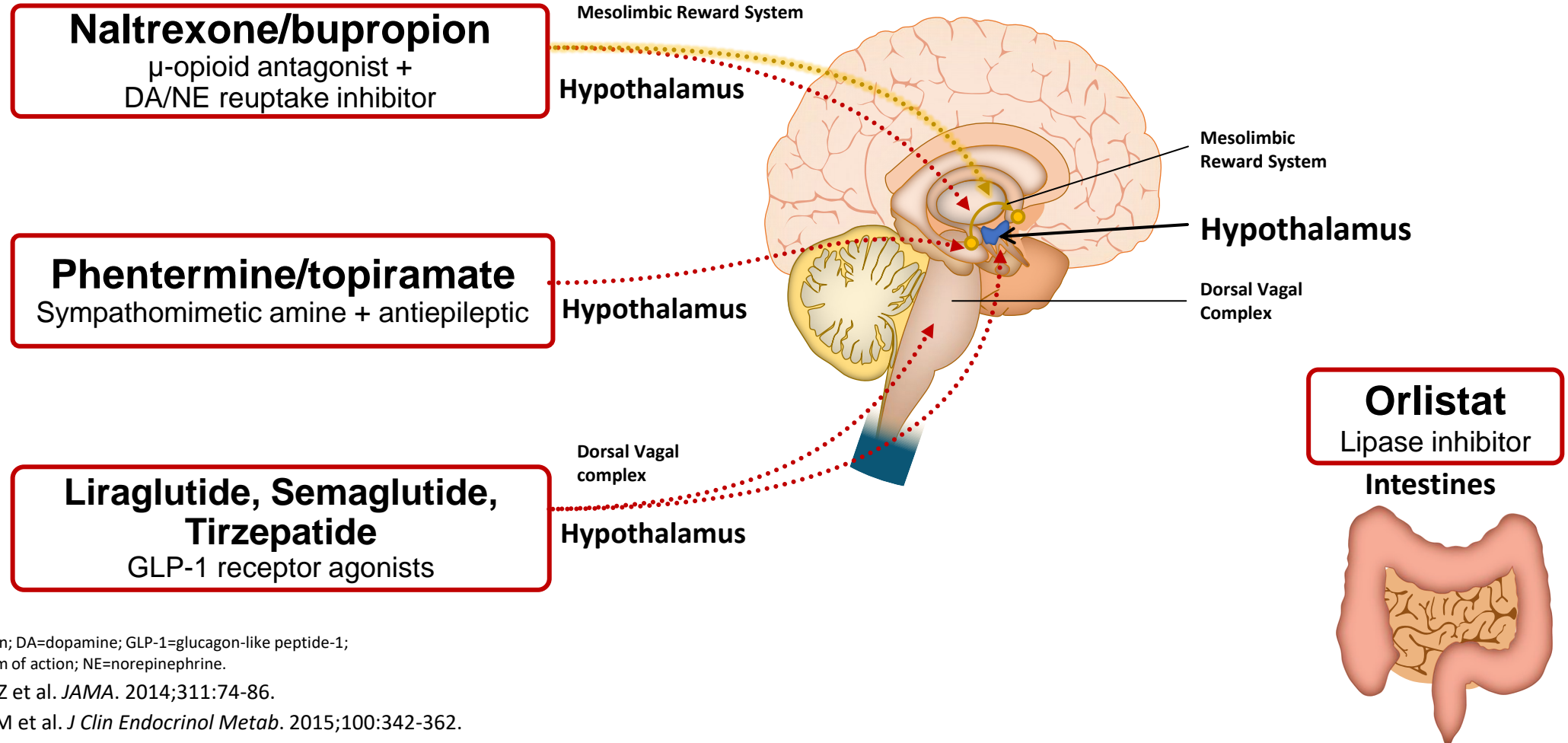


	BMI Category (kg/m ²)				
Treatment	25-26.9	27-29.9	30-34.9	35-39.9	≥40
Diet, Physical Activity, Behavior	With co-morbidities	With co-morbidities	+	+	+
Pharmacotherapy		With co-morbidities	+	+	+
Surgery			With type 2 diabetes	With co-morbidities	+

If lifestyle does not yield results, escalate to pharmacotherapy → Avoid clinical inertia

Current Obesity Pharmacotherapy

Where They Work and Mechanisms of Action



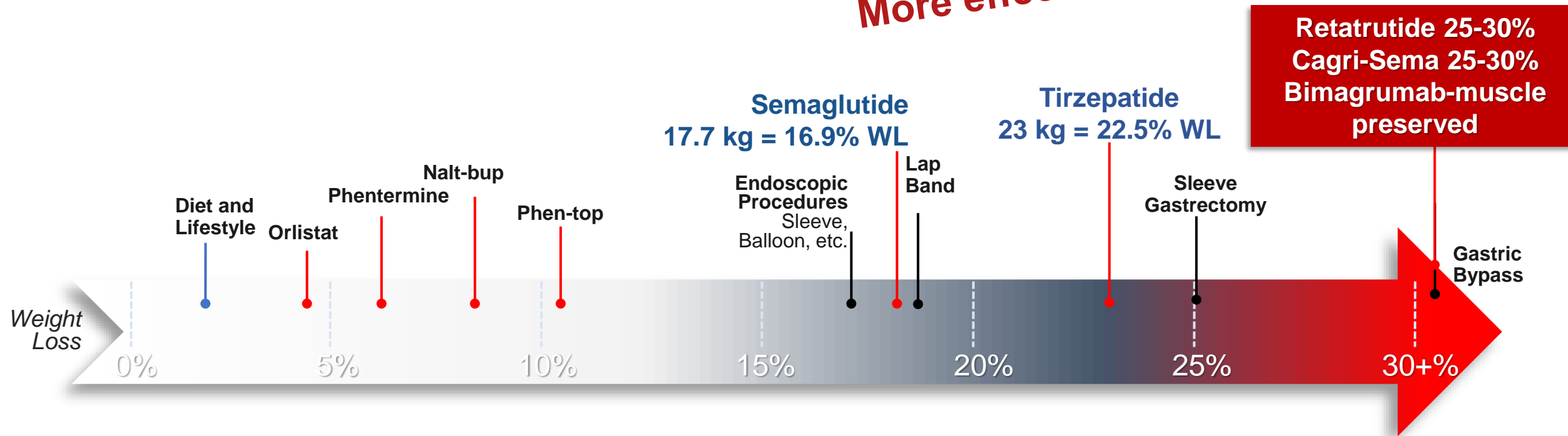
5-HT_{2c}=serotonin; DA=dopamine; GLP-1=glucagon-like peptide-1;
MOA=mechanism of action; NE=norepinephrine.

1. Yanovski SZ et al. *JAMA*. 2014;311:74-86.
2. Apovian CM et al. *J Clin Endocrinol Metab*. 2015;100:342-362.
3. Kim GW et al. *Clin Pharmacol Ther*. 2014;95:53-66.
4. Dietrich MO et al. *Nat Rev Drug Discov*. 2012;11:675-691.

Current Treatment Landscape

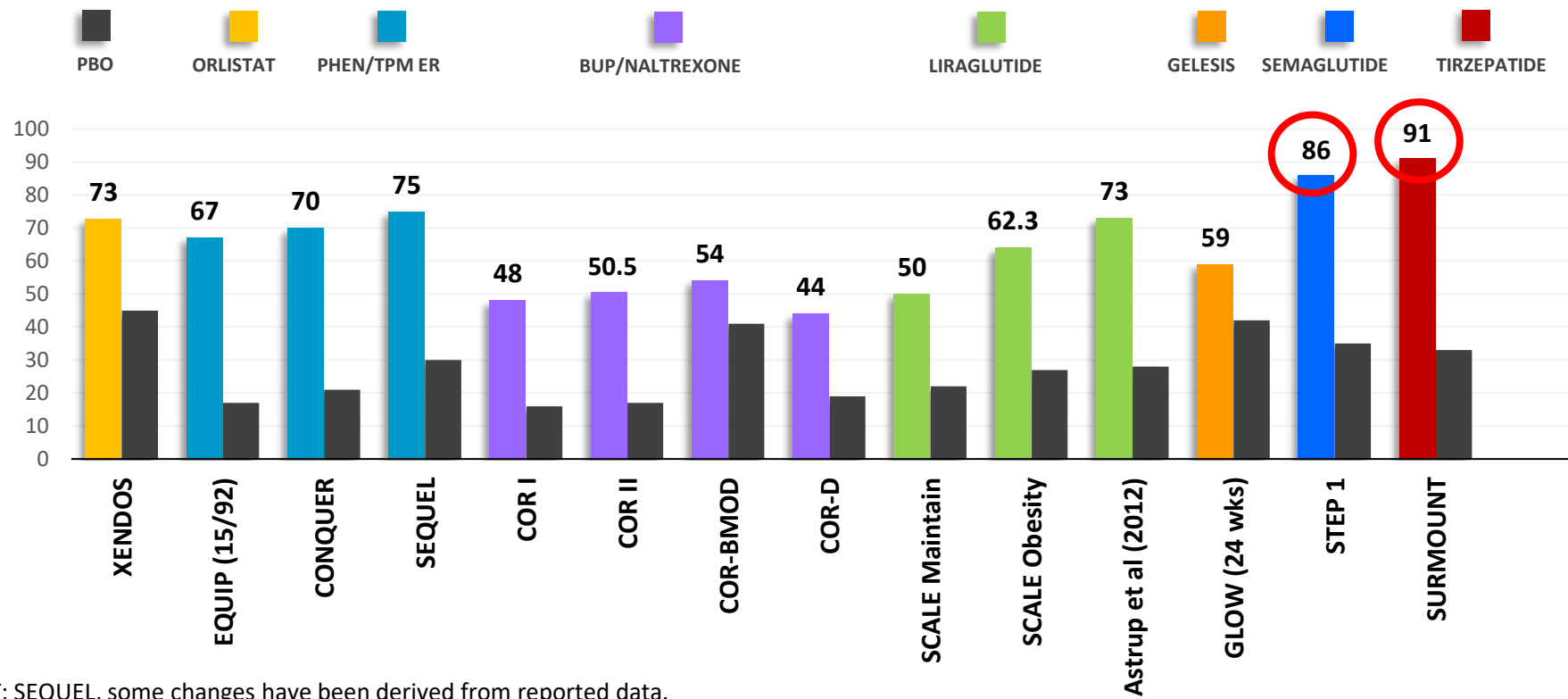
New drugs and devices can reduce weight and weight-related comorbidities

This is not the grand finale
More effective meds in development



Bariatric surgery
currently provides the best results
– newer drugs are catching up

Pharmacotherapy Increases Magnitude and Likelihood of Weight Loss Particularly Newer Drugs



Modified by L.J. Aronne. Pucci A, et al. *Can J Cardiol.* 2015;31(2):142-152. Astrup A, et al. *Int J Obes (Lond).* 2012;36(6):843-854. Wilding JPH, et al. *N Engl J Med.* 2021 Mar 18;384(11):989-1002. Jastreboff AM, Aronne LJ, et al. *N Engl J Med.* 2022 Jul 21;387(3):205-216.

Phentermine Monotherapy

Approved by the FDA for **short term use** (up to 12 weeks) approved in children ≥ 17 years and adults

Mechanism of action:	Sympathomimetic --> NE and DA release in CNS → appetite suppression
Doses available:	Long acting (once a day) <ul style="list-style-type: none">- Capsules 15mg, 30mg, 37.5mg- Tablets : 37.5mg Short acting (Three times a day) <ul style="list-style-type: none">- Tablets: 8mg
Effectiveness:	5.1% weight loss in 28 weeks
Contraindications:	Cardiovascular disease, uncontrolled hypertension, hyperthyroidism, anxiety/agitation
Side effects:	Dry mouth ; insomnia, dizziness, irritability, increased blood pressure and heart rate ; possible risk of heart disease* (associated with fen-phen which had fenfluramine which increased serotonin levels → Pulmonary HTN and valvular heart disease)
Cost considerations:	Cheap with coupons: \$10 -30 per month

Kang JG, et al . Randomized controlled trial to investigate the effects of a newly developed formulation of phentermine diffuse-controlled release for obesity. Diabetes Obes Metab. 2010

Phentermine- Topiramate

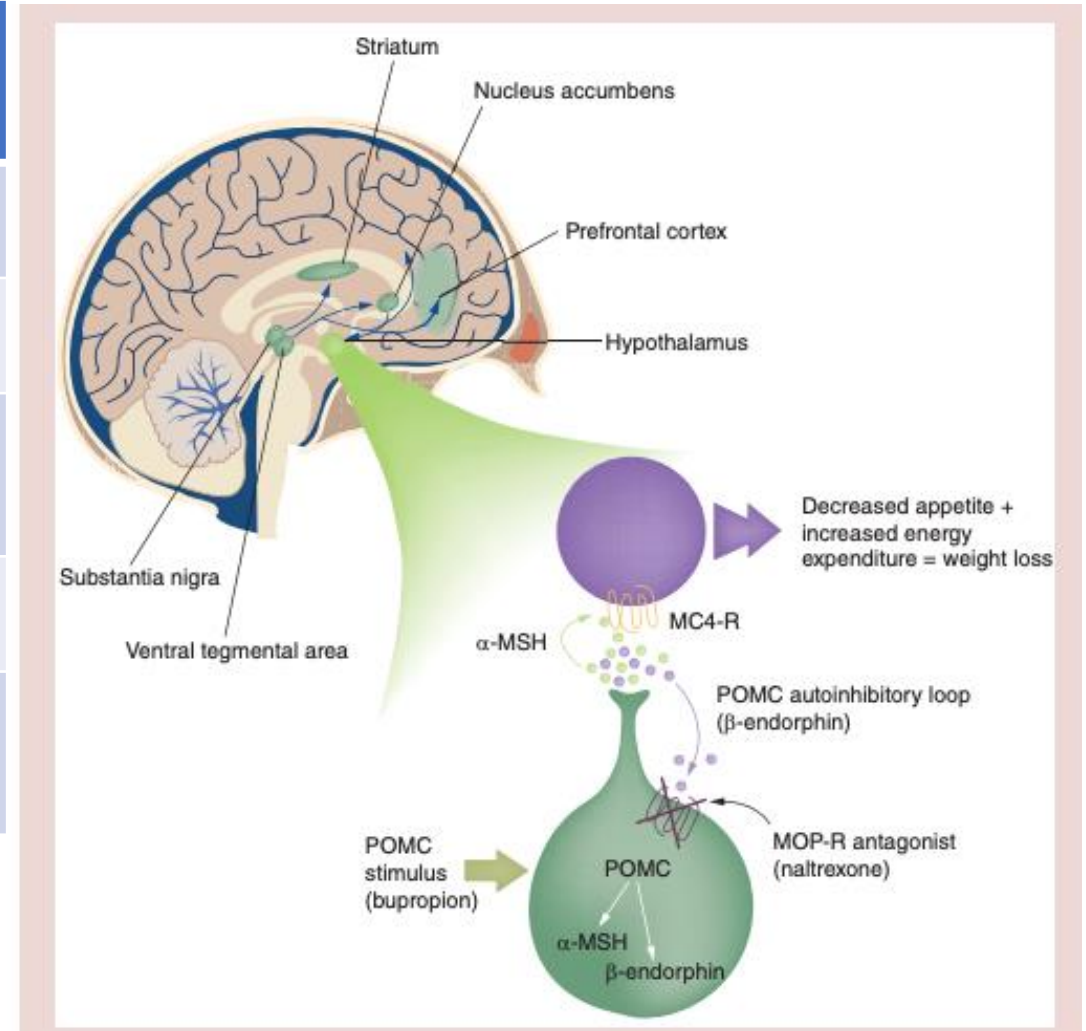
FDA approved for long-term management of weight for adults and children 12 and older

Mechanism of action:	Sympathomimetic→ NE release in hypothalamus→ Appetite suppression Topiramate→ modulation of GABA receptors, carbonic anhydrase inhibitor and glutamate antagonist → affects satiety and changes taste sensation
Doses available:	3.75 mg phentermine / 23 mg topiramate (initial dose only for 14 days) 7.5 mg phentermine / 46 mg topiramate (recommended dose) 11.25 mg phentermine / 69 mg topiramate (escalation dose) 15 mg phentermine / 92 mg topiramate (maximum dose)
Effectiveness:	CONQUER trial: 56 weeks Phase III RCT. (-7.8% and -9.8% weight loss compared to -1.2% placebo) 5% weight loss : 62, 70 and 21%, respectively
Contraindications:	Glaucoma, hyperthyroidism, teratogenic (reliable contraception)
Side effects:	Dry mouth, paresthesia, constipation, insomnia, dizziness, and dysgeusia. Serious but less common side effects include mood changes, cognitive impairment, and increased heart rate. RTA and increased risk of renal stones (calcium phosphate)
Cost considerations:	Expensive!! \$200-400 per month without insurance coverage

Bupropion-Naltrexone

FDA approved for long-term management of weight for age 17 and above, can help with smoking cessation

Mechanism of action	Naltrexone, an opioid antagonist Bupropion, a norepinephrine-dopamine reuptake inhibitor.
Mode of delivery	Oral twice a day
Effectiveness	Average weight loss of 5–6% can be enhanced with intensive lifestyle intervention.
Contra indications:	Chronic opioid use, uncontrolled hypertension, seizure disorder
Side effects:	Nausea, constipation, headache, vomiting, increased blood pressure and heart rate
Cost consideration	Expensive!! \$400-600 per month without insurance coverage



Potential Actions of GIP and GLP-1

Based on Preclinical and Clinical Research

- GLP-1 Receptor Agonism
- GIP Receptor Agonism
- Indirect Action

GLP-1 Receptor Agonism

Central Nervous System

- ↑ Satiety
- ↓ Food Intake
- ↑ Nausea
- ↓ Body Weight

Pancreas

- ↑ Insulin
- ↓ Glucagon

Stomach

- ↓ Gastric Emptying

Systemic

- ↓ **Hyperglycemia**

Liver

- ↑ **Insulin Sensitivity**
- ↓ **Hepatic Glucose Production**
- ↓ **Ectopic Lipid Accumulation**

Central Nervous System

Central Nervous System

- ↓ Food intake
- ↓ Nausea
- ↓ Body weight
- ↑ Energy expenditure

Pancreas

- ↑ Insulin
- ↑ Glucagon (glucose dependent)

Subcutaneous White Adipose Tissue

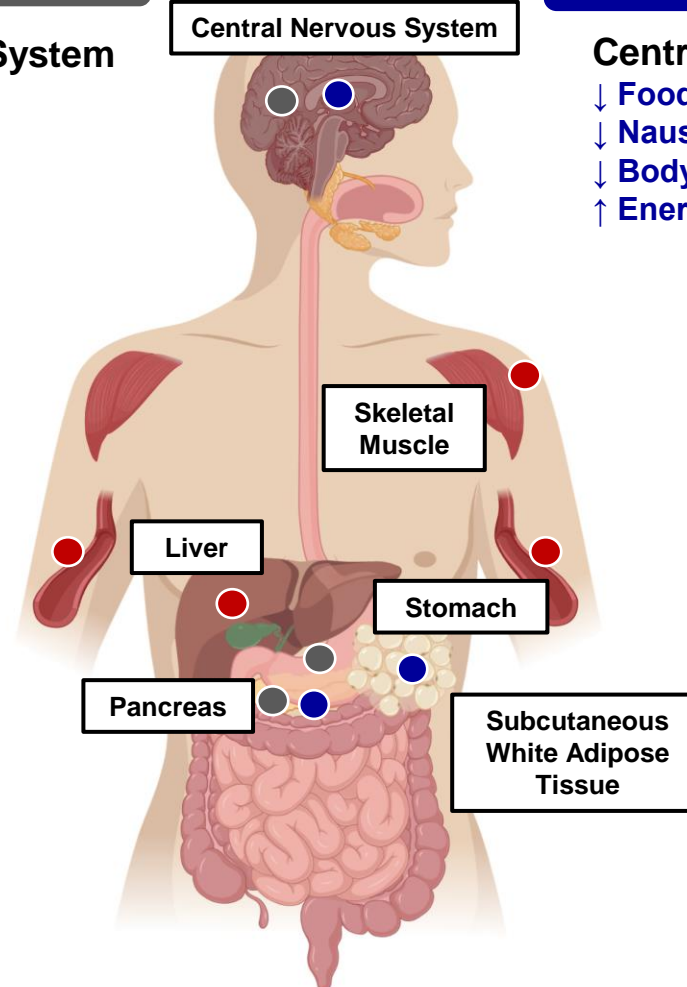
- ↑ Insulin Sensitivity
- ↑ Lipid Buffering Capacity
- ↑ Blood Flow
- ↑ Storage Capacity
- ↓ Proinflammatory Immune Cell Infiltration

Systemic

- ↓ **Hyperglycemia, Dietary Triglyceride**

Skeletal Muscle

- ↑ **Insulin Sensitivity**
- ↑ **Metabolic Flexibility**
- ↓ **Ectopic Lipid Accumulation**



Liraglutide

FDA approved approved in children ≥ 12 years and adolescents, same dosing as adults

Mechanism of action:	GLP1-RA--> hypothalamic neurons--> increase satiety Decrease gastric emptying → increase satiety
Doses available:	0.6mg SQ QD x 1 week → 1.2mg QD x 1 week → 1.8mg QD Q1W → 2.4mg QD Q1W → 3mg QD thereafter
Effectiveness:	Average weight loss 7-8% of body weight
Contraindications:	Personal or family history of medullary thyroid cancer or Type 2 Multiple Endocrine Neoplasia syndrome
Side effects:	Nausea, vomiting, bloating, fullness, diarrhea, constipation, dyspepsia, abdominal pain, fatigue, dizziness, headache, worsening depression, increase in lipase, and rarely renal insufficiency ? Pancreatitis
Cost considerations:	Expensive!! \$1000 per month without insurance coverage

Semaglutide

FDA approved approved in children ≥ 12 years and adolescents and adults

FDA approved for reducing the risk of major adverse cardiovascular events in adults with established cardiovascular disease and obesity or overweight.

Mechanism of action:	GLP1-RA--> hypothalamic neurons--> increase satiety Decrease gastric emptying → increase satiety
Doses available:	0.25mg SQ Q1W x 4 weeks → 0.5mg SQ Q1W x 4 weeks-→ 1.0 mg SQ Q1W X 4 weeks → 1.7mg SQ Q1W x 4 weeks → 2.4 mg SQ Q1W
Effectiveness:	Average weight loss 15-16% of body weight.
Contraindications:	Personal or family history of medullary thyroid cancer or Type 2 Multiple Endocrine Neoplasia syndrome
Side effects:	Nausea, vomiting, bloating, fullness, diarrhea, constipation, dyspepsia, abdominal pain, fatigue, dizziness, headache, worsening depression, increase in lipase, and rarely renal insufficiency ?? Pancreatitis; worsening diabetic retinopathy; NAION?
Cost considerations:	Expensive!!\$1300/month without insurance coverage

SELECT Trial: Cardiovascular Outcomes, August 2023

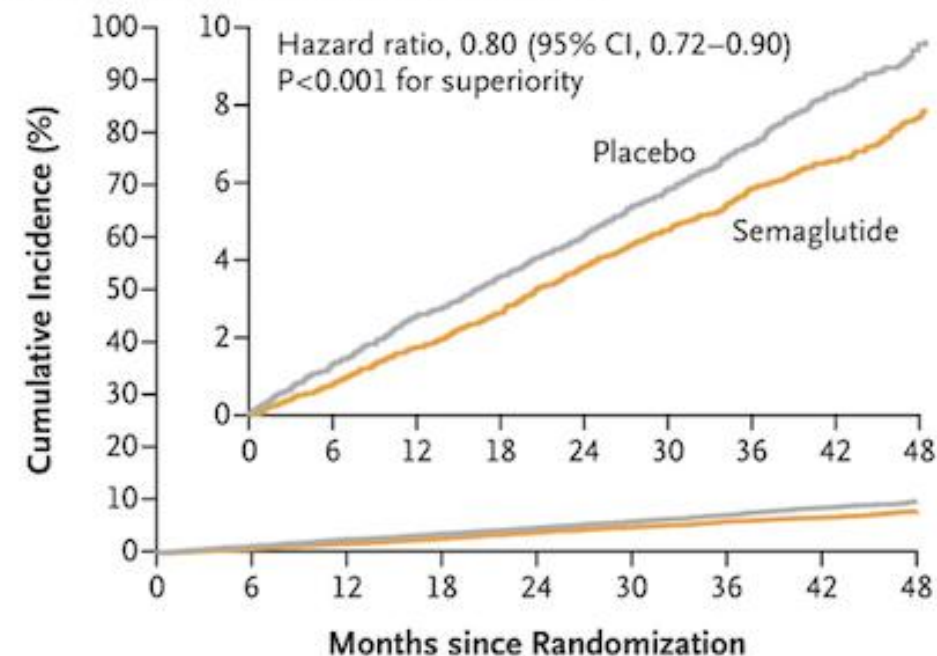
Randomised, double-blind, parallel-group, placebo-controlled trial

Semaglutide 2.4 mg reduced risk of major adverse cardiovascular events (MACE) by **20%** in adults with overweight or obesity

- n = 17,604 adults
- ≥ 45 years
- BMI ≥ 27 kg/m²
- with established CVD and no prior history of diabetes

FDA Approves First Treatment to Reduce Risk of Serious Heart Problems Specifically in Adults with Obesity or Overweight

A Primary Cardiovascular Composite End Point

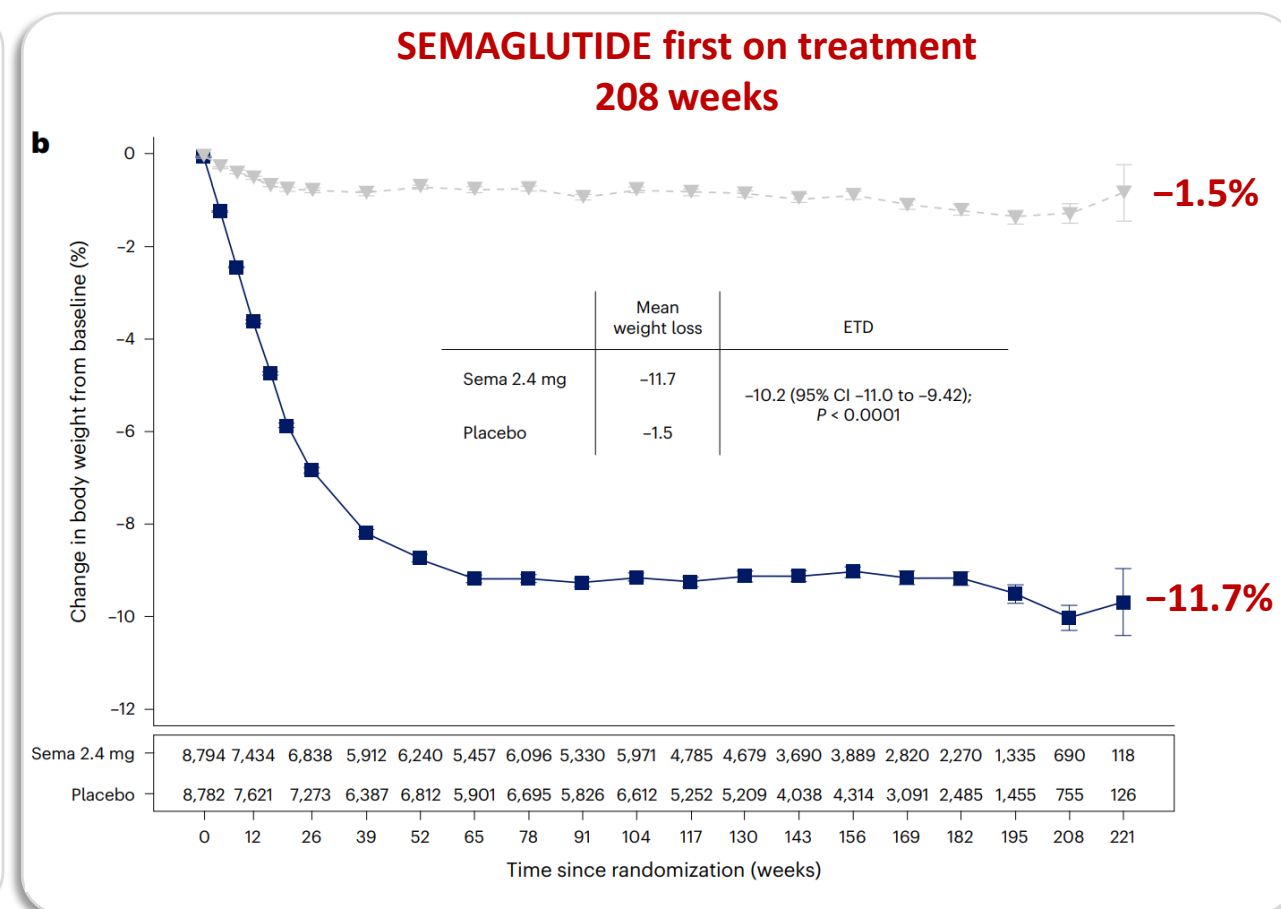
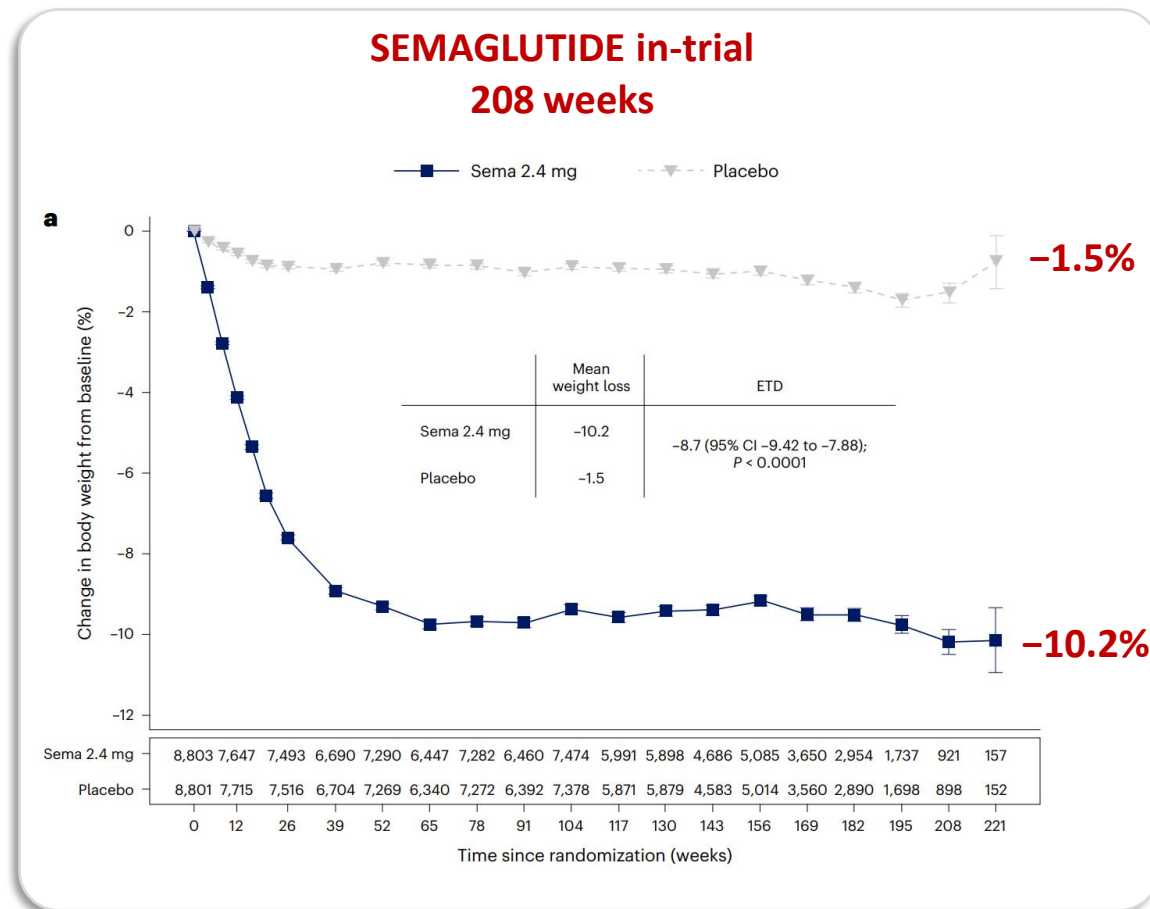


No. at Risk

Placebo	8801	8652	8487	8326	8164	7101	5660	4015	1672
Semaglutide	8803	8695	8561	8427	8254	7229	5777	4126	1734

Long-term (4 year) weight loss effects of semaglutide in obesity without diabetes

SELECT Trial n=17,604 patients (72.3% male) from 41 countries; October 2018 to March 2021; mean age 61.6 years; mean BMI 33.3 kg/m²



SELECT Trial: Diabetes Prevention Results

SELECT: Semaglutide Effects on Cardiovascular Outcomes in People With Overweight or Obesity

Risk of HgbA1c $\geq 6.5\%$

- Reduced 73%, NNT = 12

Risk of HbA1c $\geq 5.7\%$

(prediabetes) among those with baseline $\leq 5.7\%$

- Reduced 67%, NNT 3.4

Table 2. Primary and Secondary Time-to-First-Event Efficacy End Points.*				
End Point	Semaglutide (N = 8803)	Placebo (N = 8801)	Hazard Ratio (95% CI)	P Value
	number of patients (percent)			
Primary cardiovascular composite end point†	569 (6.5)	701 (8.0)	0.80 (0.72 to 0.90)	<0.001
Confirmatory secondary end points‡				
Death from cardiovascular causes	223 (2.5)	262 (3.0)	0.85 (0.71 to 1.01)	0.07
Heart failure composite end point§	300 (3.4)	361 (4.1)	0.82 (0.71 to 0.96)	NA
Death from any cause	375 (4.3)	458 (5.2)	0.81 (0.71 to 0.93)	NA
Supportive secondary end points¶				
Cardiovascular expanded composite end point	873 (9.9)	1074 (12.2)	0.80 (0.73 to 0.87)	NA
Cardiovascular composite end point with death from any cause**	710 (8.1)	877 (10.0)	0.80 (0.72 to 0.88)	NA
Nonfatal myocardial infarction	234 (2.7)	322 (3.7)	0.72 (0.61 to 0.85)	NA
Nonfatal stroke	154 (1.7)	165 (1.9)	0.93 (0.74 to 1.15)	NA
Hospitalization or urgent medical visit for heart failure	97 (1.1)	122 (1.4)	0.79 (0.60 to 1.03)	NA
Coronary revascularization	473 (5.4)	608 (6.9)	0.77 (0.68 to 0.87)	NA
Unstable angina leading to hospitalization	109 (1.2)	124 (1.4)	0.87 (0.67 to 1.13)	NA
Glycated hemoglobin level ≥6.5%††	306 (3.5)	1059 (12.0)	0.27 (0.24 to 0.31)	NA
Nephropathy composite end point‡‡	155 (1.8)	198 (2.2)	0.78 (0.63 to 0.96)	NA
Glycated hemoglobin level ≥5.7% among patients with baseline glycated hemoglobin <5.7%§§	623 (21.3)	1501 (50.4)	0.33 (0.30 to 0.36)	NA

Tirzepatide

FDA approved approved for adults only

FDA approved for adults with moderate-severe OSA with BMI ≥ 30

Doses available:	2.5mg SQ Q1W x 4 weeks → 5mg SQ Q1W x 4 weeks → 7.5mg SQ Q1W X 4 weeks → 10mg SQ Q1W x 4 weeks → 12.5 mg SQ Q1W → 15mg SQ Q1W
Effectiveness:	Average weight loss 22-23% with highest dose
Contraindications:	Personal or family history of medullary thyroid cancer or Type 2 Multiple Endocrine Neoplasia syndrome
Side effects:	Nausea, vomiting, bloating, fullness, diarrhea, constipation, dyspepsia, abdominal pain, fatigue, dizziness, headache, worsening depression, increase in lipase, and rarely renal insufficiency ?? Pancreatitis; worsening diabetic retinopathy
Cost considerations:	Expensive! \$1000/month without insurance coverage

Tirzepatide reduced sleep apnea severity by up to nearly two-thirds in adults with obstructive sleep apnea (OSA) and obesity

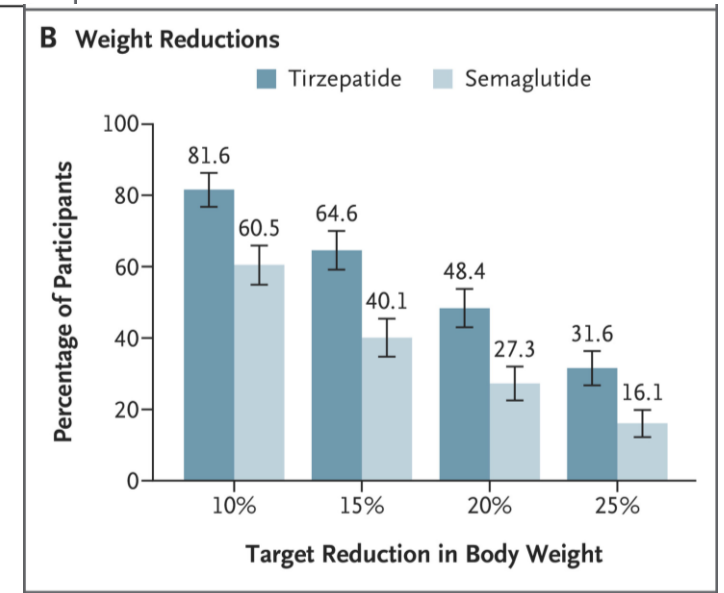
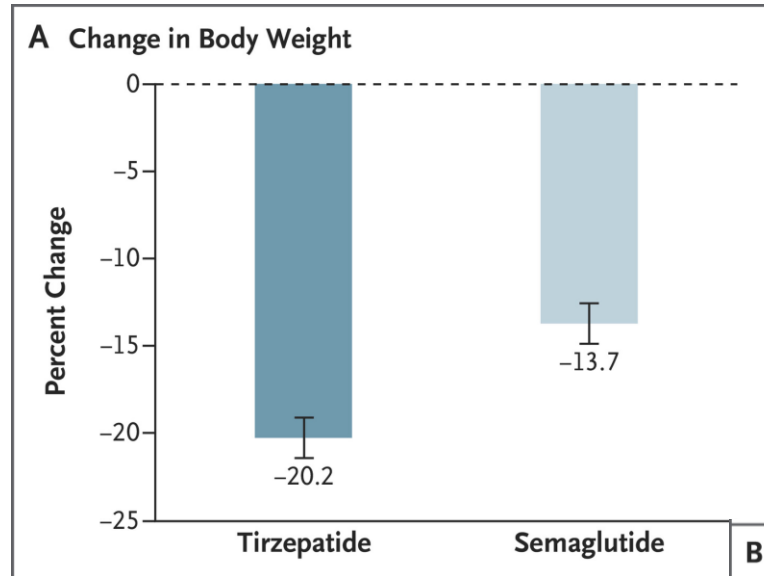
SURMOUNT-OSA Study 1 – Participants Not on PAP Therapy		
	Efficacy Estimand Results at 52 Weeks	Treatment-Regimen Estimand ⁱⁱ Results at 52 Weeks
Primary Endpoint – Change in AHI from Baseline		
Tirzepatide*	-27.4	-25.3
Placebo	-4.8	-5.3
Secondary Endpoint – Percent Change in AHI from Baseline		
Tirzepatide*	-55.0 %	-50.7 %
Placebo	-5.0 %	-3.0 %
Secondary Endpoint – Percent Change in Body Weight from Baseline		
Tirzepatide*	-18.1 %	-17.7 %
Placebo	-1.3 %	-1.6 %

**Tirzepatide MTD is maximum tolerated dose of 10 mg or 15 mg once-weekly. The starting dose of 2.5 mg tirzepatide was increased by 2.5 mg every four weeks until maximum tolerated dose was achieved. Participants who tolerated 15 mg continued on 15 mg as their maximum tolerated dose. Participants who tolerated 10 mg but did not tolerate 15 mg continued on 10 mg as their maximum tolerated dose.*

Apnea-hypopnea index (AHI)

SURMOUNT-5: Tirzepatide Superior to Semaglutide for Weight Loss

- Open-label RCT
- Adults with obesity but without diabetes
- 1:1 semaglutide or tirzepatide
- 72 weeks follow up



Prescribing Guide



Polling Question #1

What is the **minimum BMI** required to prescribe anti-obesity medication *without* any weight-related comorbidities?



Polling Question #1

What is the **minimum BMI** required to prescribe anti-obesity medication *without* any weight-related comorbidities?

- A) 25
- B) 27
- C) 30
- D) 35



Polling Question #1

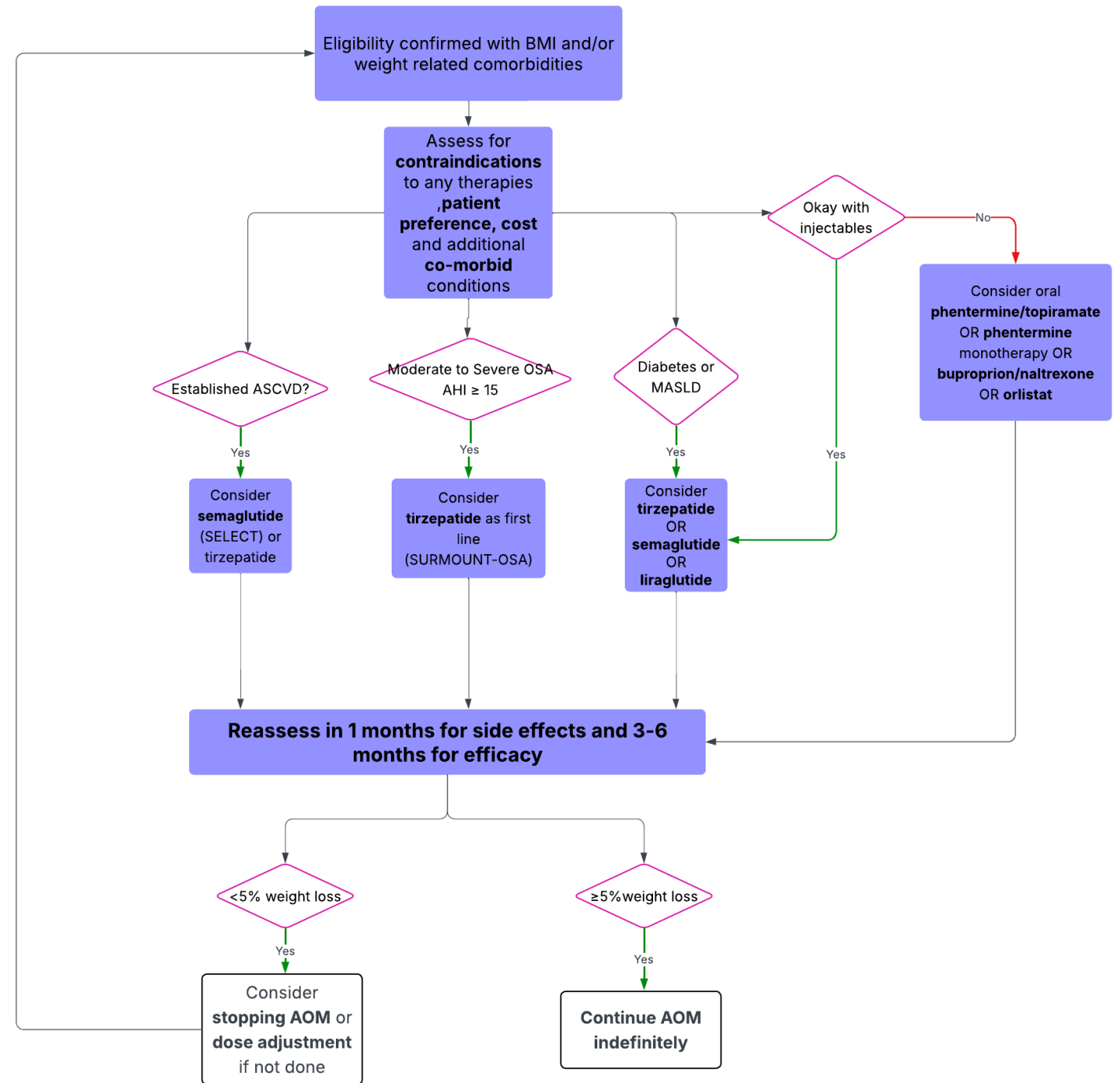
What is the **minimum BMI** required to prescribe anti-obesity medication *without* any weight-related comorbidities?

- A) 25
- B) 27
- C) 30**
- D) 35

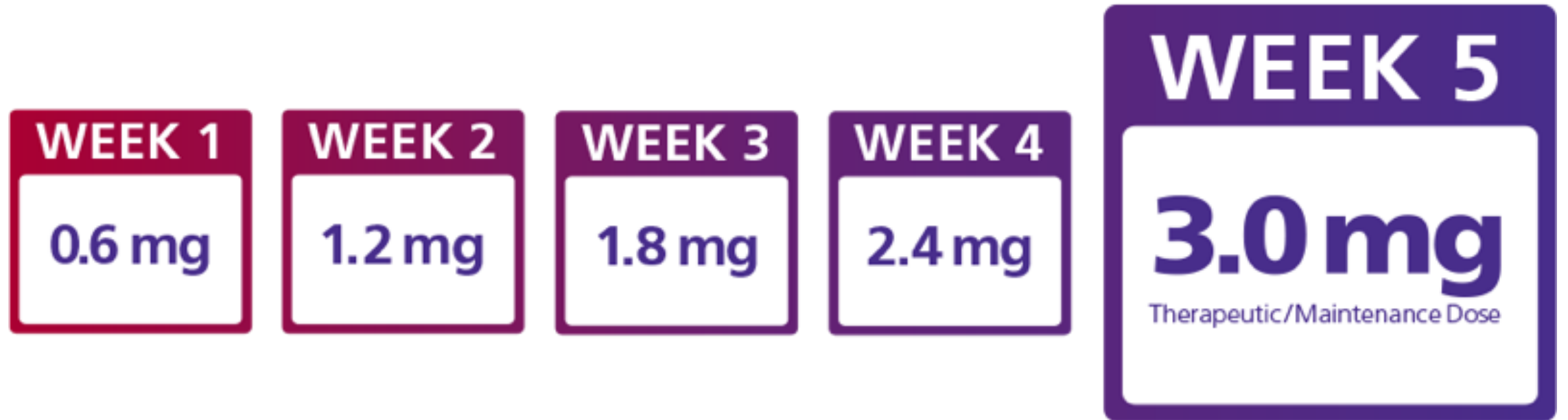


Prescribing AOMs

While not FDA approved for this indication, SUMMIT trial showed that among obese patients with **HFpEF**, **tirzepatide** was superior to placebo in improving the **composite endpoint of CV death and HF-related events** over 104 weeks of follow-up.



Liraglutide Titration



Semaglutide/Titration



Tirzepatide Titration



Starting
For 4 weeks



For 4+ weeks



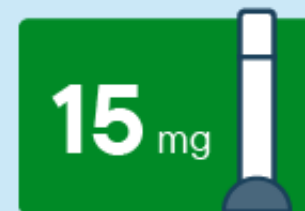
For 4+ weeks



For 4+ weeks



For 4+ weeks



Maximum dose

SIDE EFFECTS for Liraglutide, Semaglutide, and Tirzepatide

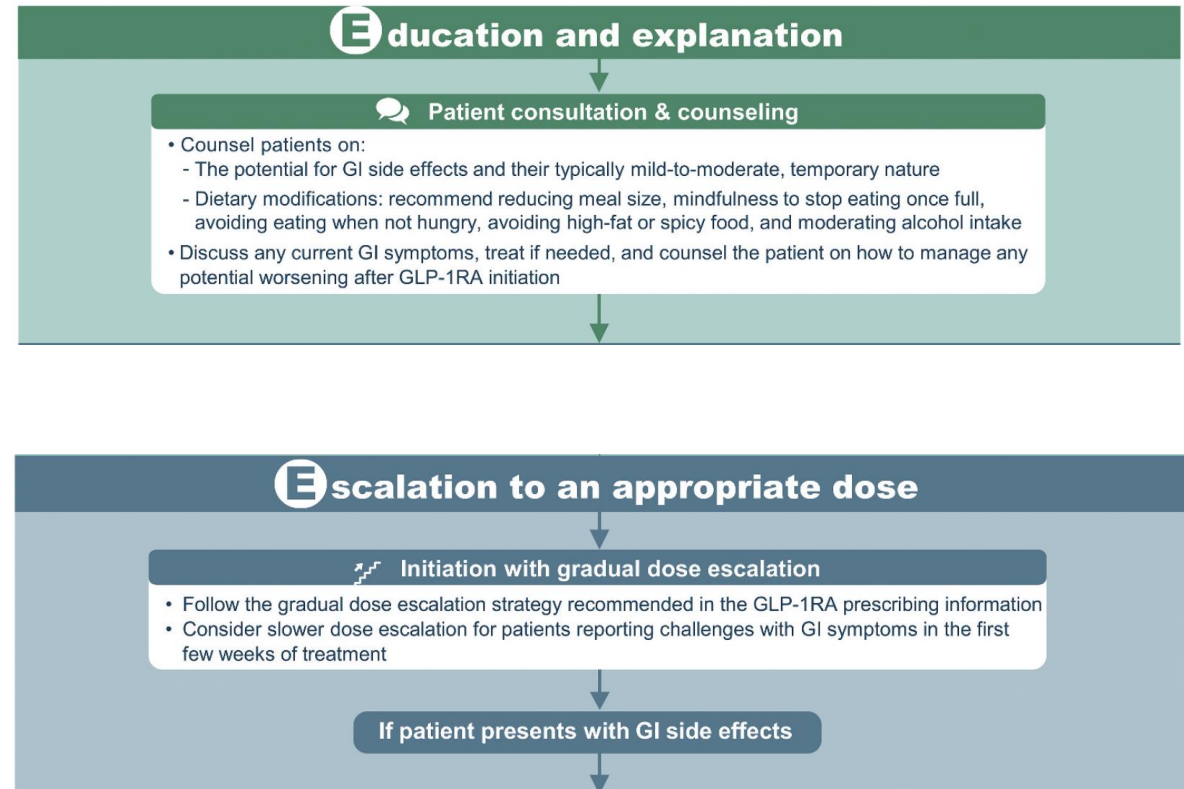
	SCALE (Liraglutide 3.0, placebo %)	STEP-1 (Semaglutide 2.4, placebo,%)	SURMOUNT-1 (Tirzepatide 5/ 10/ 15, placebo %)
Nausea	40.2/ 14.7	44.2/ 17.4	24/ 33/ 31/ 9.5
Vomiting	16.3/ 4.1	24.8/ 6.6	18.7/ 21// 23/ 7
Diarrhea	20.9/ 9.3	31.5/ 15.9	8.3/ 10.7/ 12.2/ 1.7
Constipation	20.0/ 8.7	23.4/ 9.5	16.8/ 9.7/ 11.3/ 4/2
Dyspepsia	9.5 / 3.1	10.3/ 3.5	8.9/ 9.7/ 11.3/ 4.2
Upper abdominal pain	5.7/ 3.5		
Abdominal pain	5.2/ 3/5	10.0/ 5.5	4.9/ 5.3/ 4.9/ 3/5
Cholelithiasis	0.8/ 0.4	1.8/ 0.6	1.1/ 1.4/ 0.6/ 0.9
Gallbladder disorders		2.6/ 1.2	
Hepatobiliary disorders		2.5/ 0.8	
Cholecystitis acute	0.5/0.4		0.2/ 0..6/ 0.2/ 0
Pancreatitis acute	0.2/ 0	0.2/ 0	0.2/ 0.2/ 0.2/ 0.2
Fatigue	7.5/ 5.2		
Injection site hematoma	5.7/ 7.5		Reaction 2.9/ 5.7/ 4.6/ 0.3

More recent comparative data: SURPASS-5

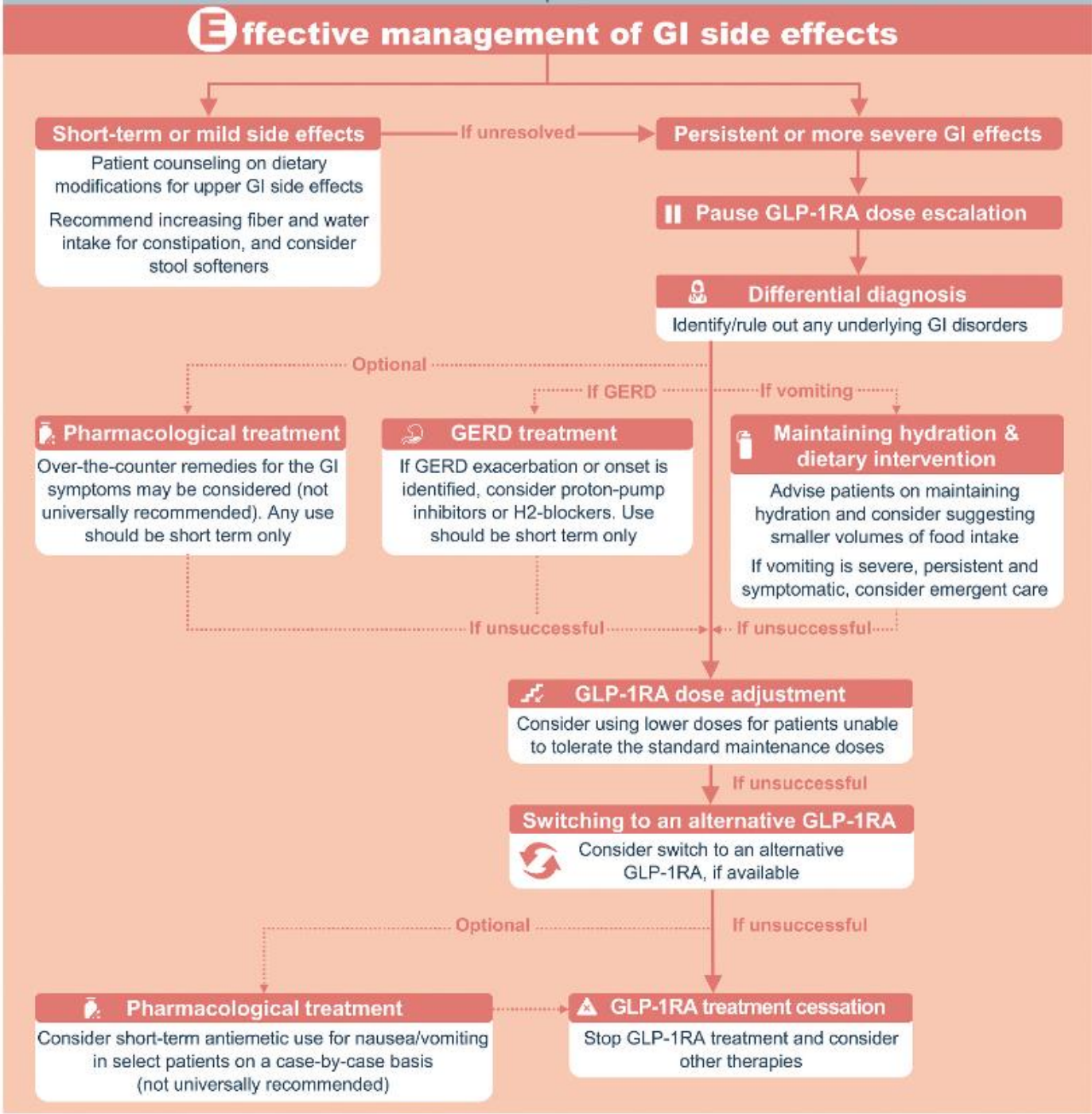
	Semaglutide (%)	Tirzepatide (%)
Nausea	44.4	43.6
Vomiting	21.3	15
Diarrhea	28.5	27
Constipation	23.4	23.5
Dyspepsia	10.3/ 3.5	8.9/ 9.7/ 11.3/ 4.2
Abdominal pain	6.9	6.4
GERD	10.6	6.1
Cholecystitis	0	0
Cholethiasis	0.5 (2 cases)	0
Pancreatitis acute	1 case	0
Fatigue	12.2	10.4
Injection site reaction	0.3	8.6

Mitigating Side Effects

- **START LOW AND GO SLOW**
- Nausea most frequent side effect
- Prevalence highest during first 4-5 weeks of treatment
 - Gastric emptying also slowest
 - Last 8 days from onset
- Constipation - onset in first 16 weeks
 - may last longer than other GI SEs



Effectively Managing GI side effects



Tips to navigate GLP1RA and GIP/GLP1RA shortages

Switch as needed

Low Potency

- Liraglutide 0.6 mg
- ORAL Semaglutide 3 mg

Medium Potency (Level1)

- Liraglutide 1.2 mg
- Dulaglutide 0.75 mg
- Semaglutide 0.25 mg
- ORAL semaglutide 7 mg

Medium Potency (Level 2)

- Liraglutide 1.8 mg
- Semaglutide 0.5 mg
- Dulaglutide 1.5 mg
- Tirzepatide 2.5 mg
- Oral Semaglutide 14 mg

High Potency

- Liraglutide 2.4 mg and 3 mg
- Semaglutide 1 mg
- Dulaglutide 3 mg and 4.5 mg
- Tirzepatide 5 mg

Very High Potency

- Semaglutide 2 mg and 2.4 mg
- Tirzepatide 7.5 and 10 mg

Highest Potency

- Tirzepatide 12.5 mg and 15mg



Whitley HP, Trujillo JM, Neumiller JJ. Clin Diabetes. 2023 Summer;41(3):467-473.

Special Report: Potential Strategies for Addressing GLP-1 and Dual GLP-1/GIP Receptor Agonist Shortages

Tips to navigate GLP1RA and GIP/GLP1RA shortages

Use lower doses if a prolonged period has lapsed since use

Medication	Last dose taken	Manufacturer Recommendations for resuming treatment
Liraglutide	1.8 mg	Resume at 1.2 mg or 0.6 mg if >one week missed
Dulaglutide	1.5 mg	Resume at 1.5 mg weekly dose
Dulaglutide	3 or 4.5 mg	If more than 3 weeks missed, use patient's prior experience as guide. Either resume same or 1.5 mg dose
Semaglutide	1 mg	If ≤ 2 weeks missed resume at same dose If 3-4 weeks missed, resume at 0.5 mg dose If ≥ 5 weeks missed start over at 0.25 mg
Tirzepatide	≥ 5 mg	If ≤ 2 doses are missed, reinitiate at the same dose (provided dose adequately tolerated) If ≥ 3 doses are missed, reinitiate at 5mg once weekly

Novo Nordisk. Victoza (liraglutide) prescribing information. Bagsvaerd, Denmark, Novo Nordisk, July,2022, Ozempic (semaglutide) injection prescribing information, Plainsboro, NJ.

Whitley HP, Trujillo JM, Neumiller JJ. Clin Diabetes. 2023 Summer;41(3):467-473.

Special Report: Potential Strategies for Addressing GLP-1 and Dual GLP-1/GIP Receptor Agonist Shortages

New Medications: Obstacles to Overcome

Oral vs. Injection

- Injections are tolerable for most people, but less convenient than a pill
- Novo Nordisk oral semaglutide (approved for diabetes) leads to far less weight loss than injectable semaglutide → Higher dose (15% weight loss OASIS1) → filed for FDA approval
- Pfizer, Eli Lilly, Structure Therapeutics, Astrazeneca all have GLP-1 agonist pill in pipeline

Create Drugs with Fewer Side Effects

- Gastrointestinal issues are common with semaglutide
- Rare but possible serious issues, such as pancreatitis, and kidney failure with semaglutide and tirzepatide
- New concern for risk of NAION with semaglutide

Improve Access/ Lower Cost

- Medicare and most private insurance companies don't typically cover anti-obesity drugs (classified as "cosmetic")
- Oral forms of these drugs (some available by 2026) are expected to cost about \$500/month; by 2030, the cost could be \$350/month, (Morgan Stanley analysis) which would still be out of reach for many Americans

Polling Question #2

Mrs. X comes to you for follow-up of her weight management. She started semaglutide for weight loss 1 year ago and initially her weight went down from 190lbs to 150lbs in the first six months, but she has not lost any weight since then. She is on maximum dose of semaglutide 2.4mg weekly. Her current BMI is 26. She has no other chronic medical conditions. She is asking you if she can come off semaglutide since “it’s no longer working”.

What do you do?

Polling Question #2

She is asking you if she can come off semaglutide since “it’s no longer working”. What do you do?

- a) Continue semaglutide
- b) Slowly wean off semaglutide
- c) Stop semaglutide now

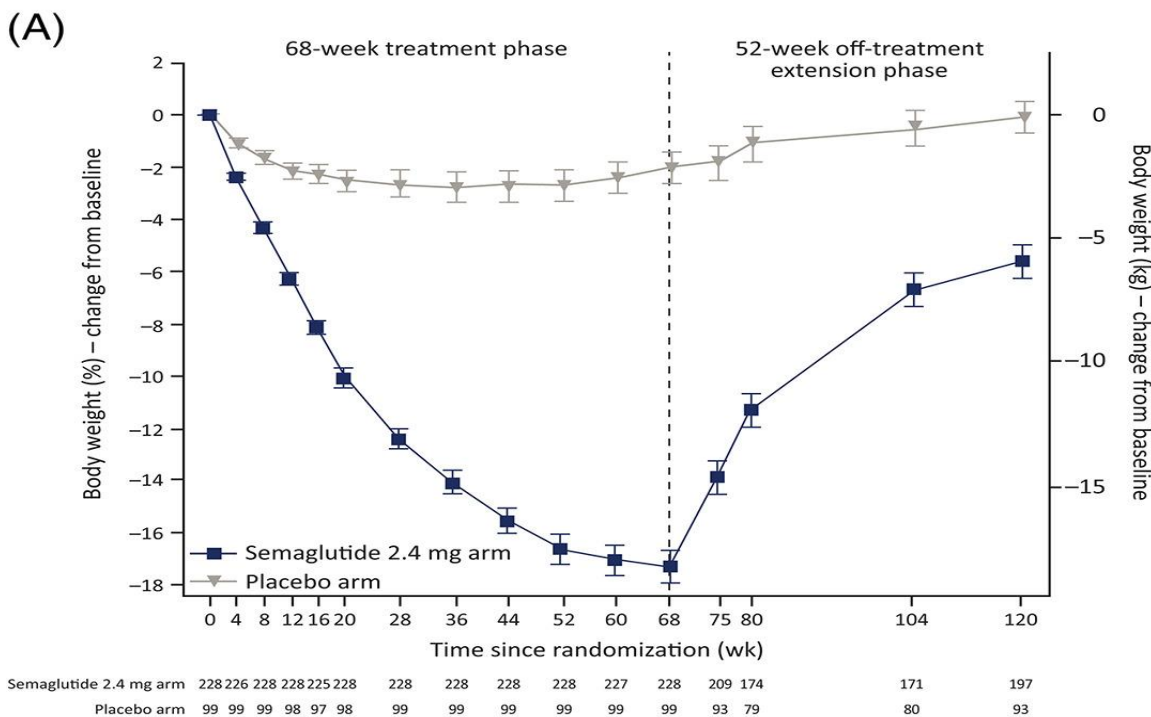
Polling Question #2

She is asking you if she can come off semaglutide since “it’s no longer working”. What do you do?

- a) **Continue semaglutide**
- b) Slowly wean off semaglutide
- c) Stop semaglutide now

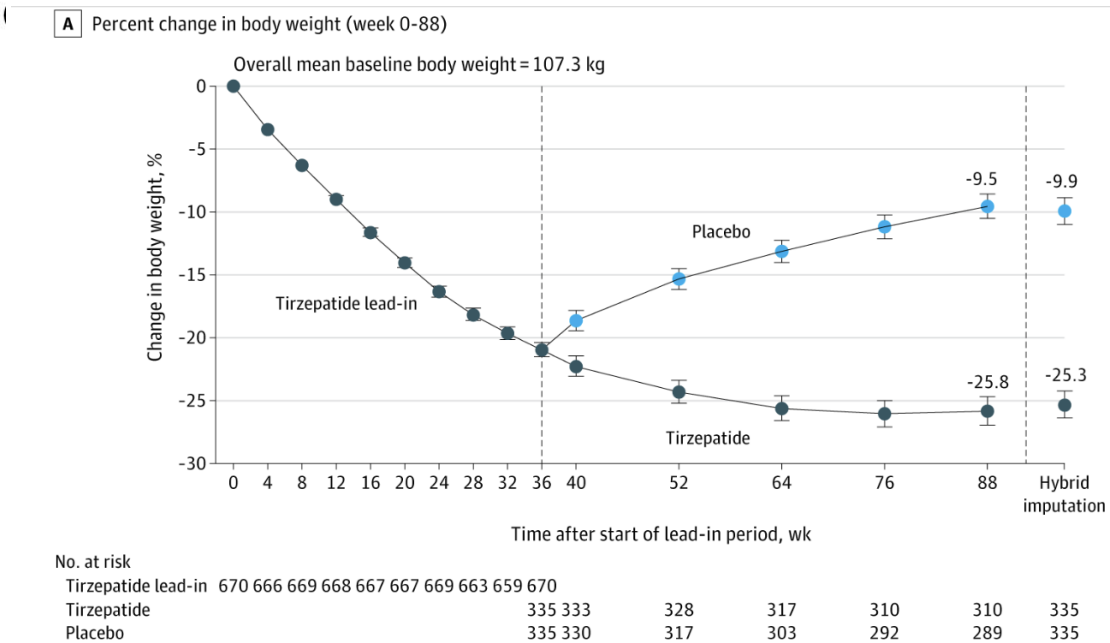
Data from treatment drugs

Semaglutide



Wilding JPH, et al. regain and cardiometabolic effects after withdrawal of semaglutide: The STEP 1 trial extension. Diabetes Obes Metab. 2022.

Tirzepatide

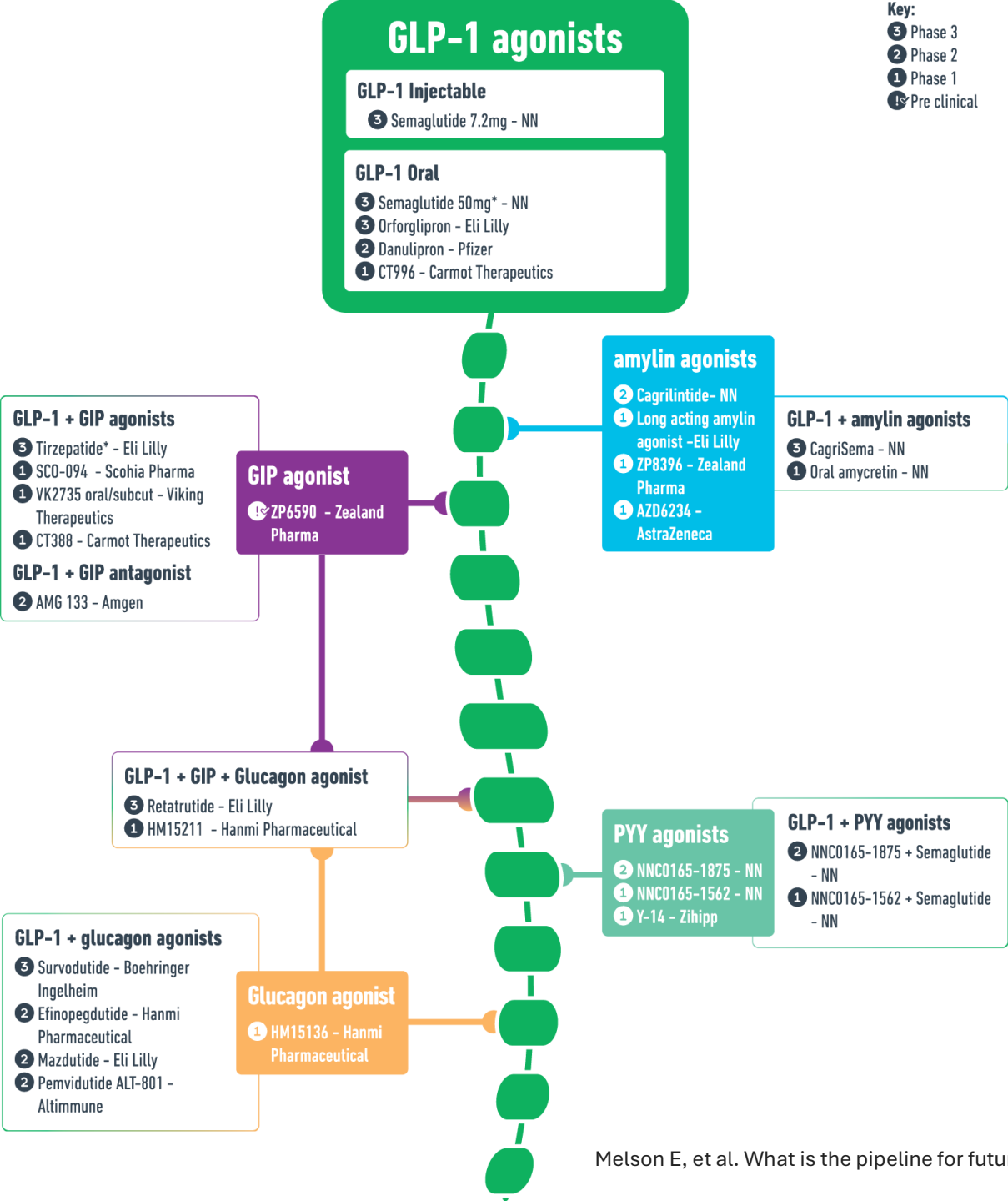


Aronne LJ, et al. Continued Treatment With Tirzepatide for Maintenance of Weight Reduction in Adults With Obesity: The SURMOUNT-4 Randomized Clinical Trial. JAMA. 2024;331(1):38–48. doi:10.1001/jama.2023.24945

Pipeline



Newer drugs in the pipeline



MOC Reflective Statement

- Obesity is a **chronic**, relapsing, **serious** but **treatable medical condition** with strong genetic predisposition that has been under-treated and wrongly attributed to personal lifestyle choices alone for too long (and still is).
- We need to change the way medicine is practiced by empowering primary care providers to treat obesity
- Semaglutide and tirzepatide weight loss outcomes approach those of bariatric surgery and impact many related co-morbidities
- Many Nutrient-stimulated Hormonal therapies (NuSH) in development

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