

# ENDOCRINE SOCIETY



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*Hormone Science to Health*

# Pharmacological Management of Obesity:

An Endocrine Society  
Clinical Practice Guideline

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# Agenda

## I. Overview of *Pharmacological Management of the Obese Patient: An Endocrine Society Clinical Practice Guideline*

- Highlights and Key Recommendations
- Patient Treatment Plans

## II. Case Discussion

**I. Overview of  
*Pharmacological Management  
of the Obese Patient: An  
Endocrine Society Clinical  
Practice Guideline***

# First Guideline of its Kind

## Blueprint on:

- ▶ Medical management of the disease of obesity
- ▶ Clinical encounter with overweight and obese patients
- ▶ Rationale for pharmacologic treatment of obesity
- ▶ Care of the patient who is overweight or obese
- ▶ Drugs that cause weight gain and alternative drugs that promote weight neutrality or weight loss
- ▶ Off-label use of drugs for weight loss

# The Role of Medications in Weight Loss

They do not “work on their own.”

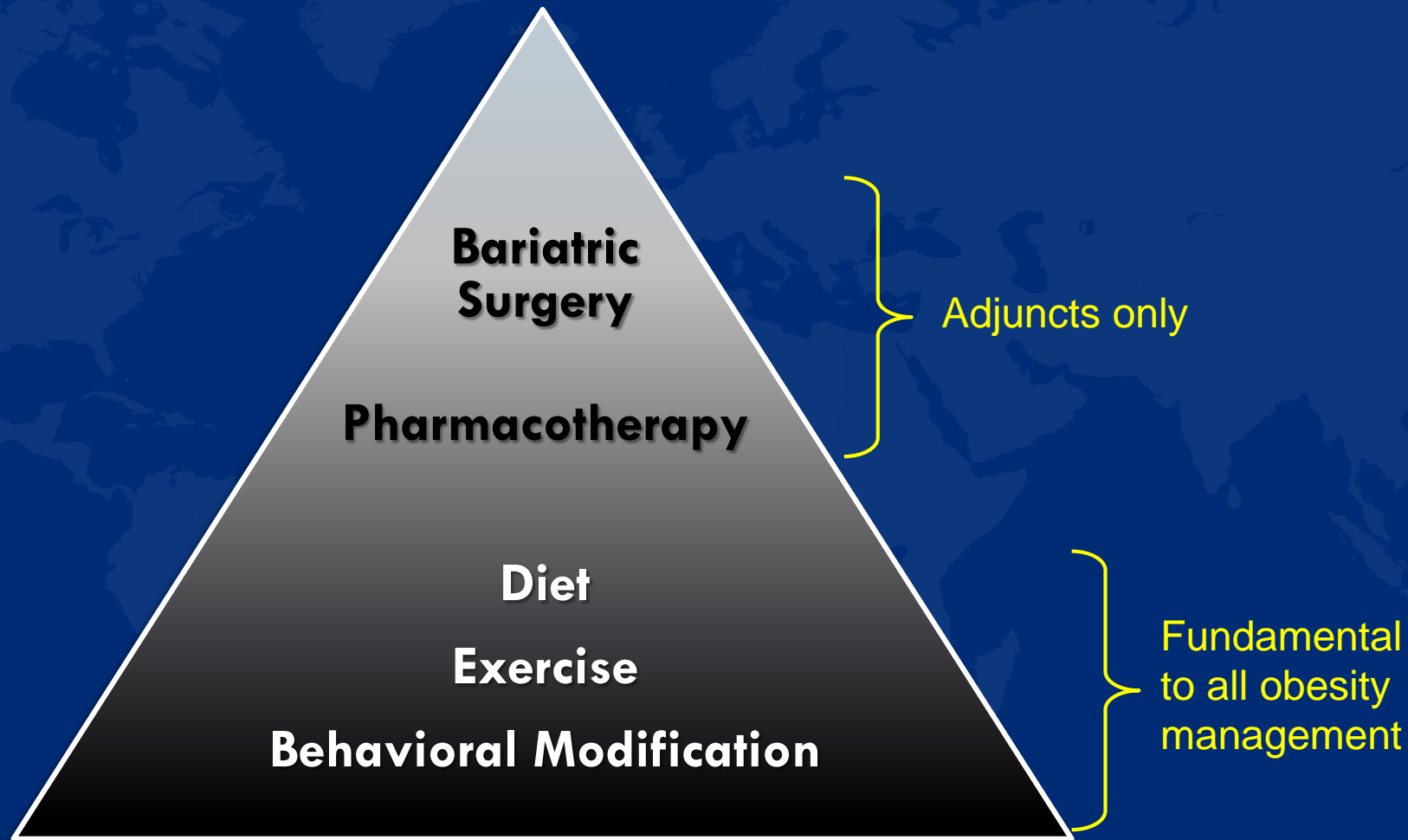
- ▶ Medications amplify the effect of behavioral changes to produce consumption of fewer calories.
- ▶ Addition of a weight loss medication to a lifestyle program will likely result in greater weight loss.



# Highlights and Key Recommendations



# Fundamentals of Care



# Clinician Role in Patient Encounter

Perform annual screening for major chronic conditions associated with obesity in all adult patients with a BMI  $\geq 30\text{kg/m}^2$

- T2DM
- Cardiovascular disease
- Hypertension
- Hyperlipidemia
- Obstructive sleep apnea
- Nonalcoholic fatty liver disease
- Osteoarthritis
- Major depression

Adhere to national cancer screening guidelines

**Obese individuals are at increased risk for many malignancies**

Identify and screen for secondary causes of obesity

Identify contributing factors

- Family history
- Sleep disorders
- Disordered eating
- Genetics
- Environmental
- Socioeconomic

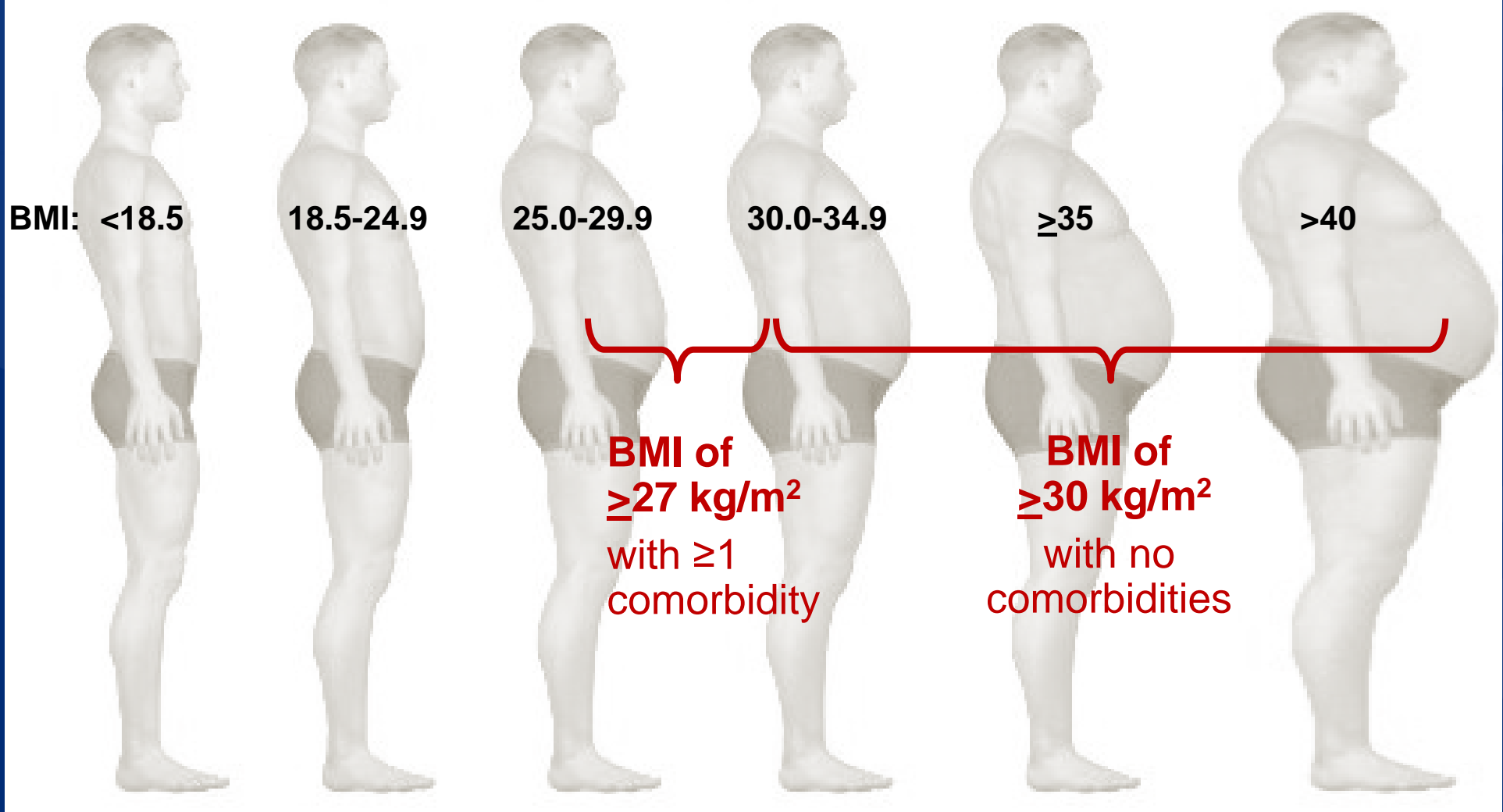
Adhere to AHA/ACC/TOS Guideline for the Management of Overweight and Obesity in Adults

Identify medications that contribute to weight gain and prescribe alternatives

Formulate treatment plan based on diet, exercise, and behavior modifications

# Criteria for Using Approved Medications

Adjunct to an energy deficient diet, increased physical activity and behavior modification



# Frequent Patient Follow-up is Key

All patients prescribed weight loss medications:



*At least monthly  
for first 3 months*

*Then at least  
every 3 months*

Best weight loss outcomes occur with frequent face to face visits (16 visits per year average)

# Weight Loss Drugs: Dosage and Duration

Long-term Obesity Treatment:  
Start with lowest dose

Phentermine/topiramate  
7.5mg/46 mg

Lorcaserin 10 mg bid

Orlistat 120 mg tid

Orlistat OTC 60 mg tid

Intermittent Use

For situations or times of year  
where lifestyle factors promote  
weight regain

Several months on, one month off

# Treat Weight First – Then Comorbidities

## Old Treatment Paradigm Treat *Weight LAST*

	Dys-lipidemia	HTN	IGT
Monitor	Lipid panels Lipoproteins subsets	Blood Pressure Ambulatory Blood Pressure	Blood sugar Glycosylated hemoglobin distribution
Diet	↓ Total fat ↓ Chol. ↑ Fiber	↓ Sodium ↑ K ++	↓ Sugar Distribute CHO, PRO, Fat
Meds	Statins Fibrates Resins Niacin	Central acting Renal effective Peripherally acting diuretics Thiazide diuretics	Insulin Sulfonylureas Glidizones Absorption agents



Overweight/Obesity	
Monitor	Weight and BMI
Diet	Any diet patient will adhere to
Exercise	150 minutes of moderate-intensity aerobic activity/wk and muscle-strengthening activities on $\geq 2$ days/wk
Meds	Orlistat, phentermine, phentermine/topiramate, lorcaserin

## New Treatment Paradigm Treat *Weight FIRST*

Overweight/Obesity	
Monitor	Weight and BMI
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	Dys-lipidemia	HTN	IGT
Monitor	Lipid panels Lipoproteins subsets	Blood Pressure Ambulatory Blood Pressure	Blood sugar Glycosylated hemoglobin distribution
Diet	↓ Sat + trans fat ↑ Omega-3s ↑ MUFA ↓ Simple CHOs ↓ ETOH	DASH Diet ↓ Sodium ↓ ETOH	Glycemic index diet ↑ Fiber Diabetic diet
Meds	Statins Fibrates	ACE Inhibitors ARBs Thiazide diuretics	Metformin Exenatide Liraglutide

# Patient Treatment Plans



# Criteria for Using Approved Medications

Dual benefit of weight loss and glycemic control

Metformin

Glucagon-like Peptide-1 (GLP-1) Agonists

- Exenatide
- Liraglutide

**RECOMMENDED**

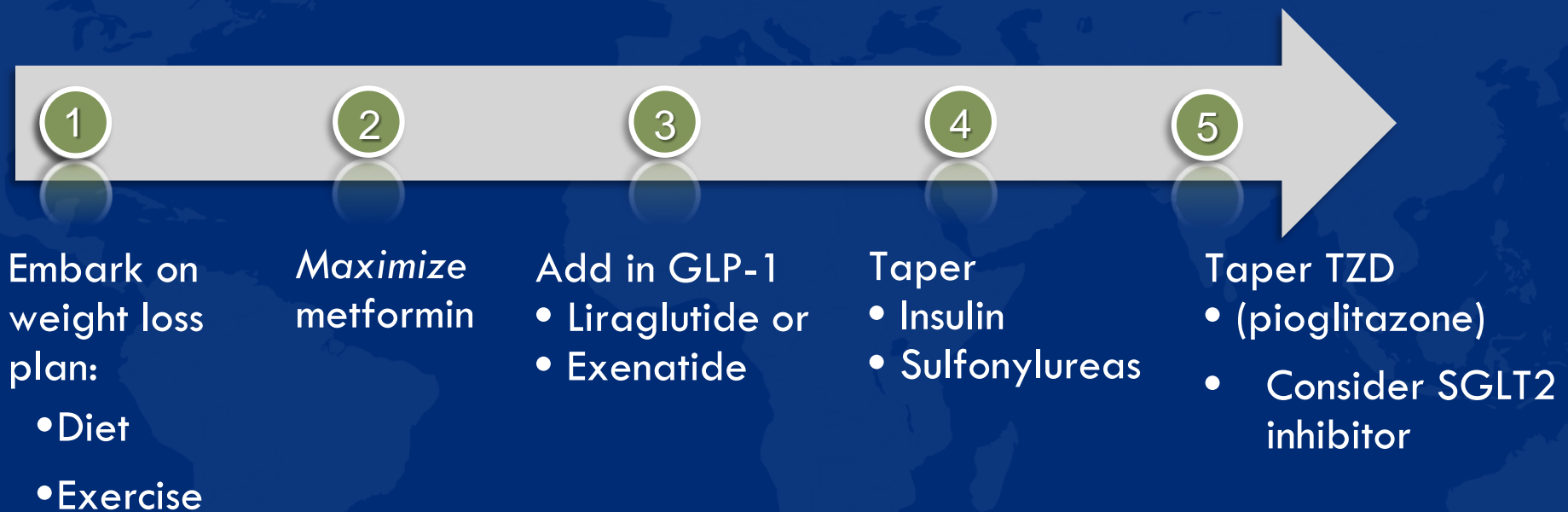
New class  
SGLT-2  
Inhibitors

- Dapagliflozin
- Canagliflozin



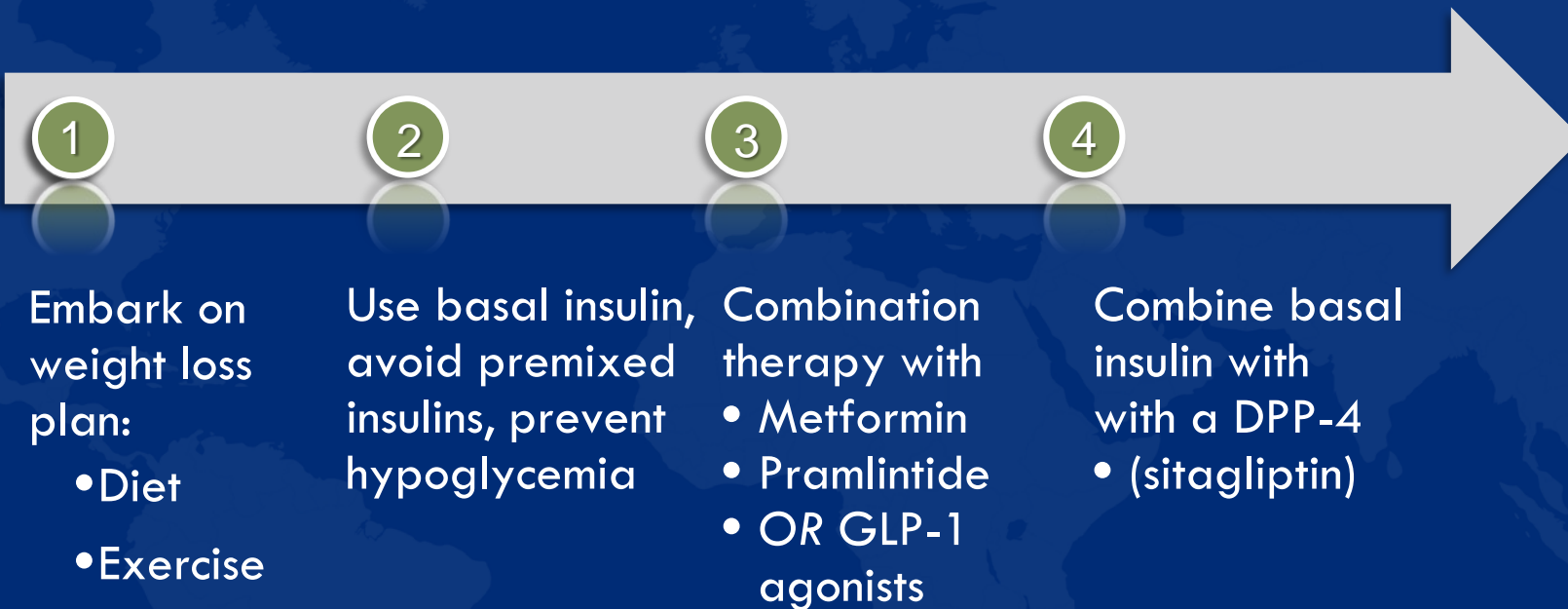
# Overweight/Obese Patient with T2DM

Who is on medication which promote weight gain: insulin, sulfonylureas, and other insulin secretagogues, and thiazolidinediones (TZD's)



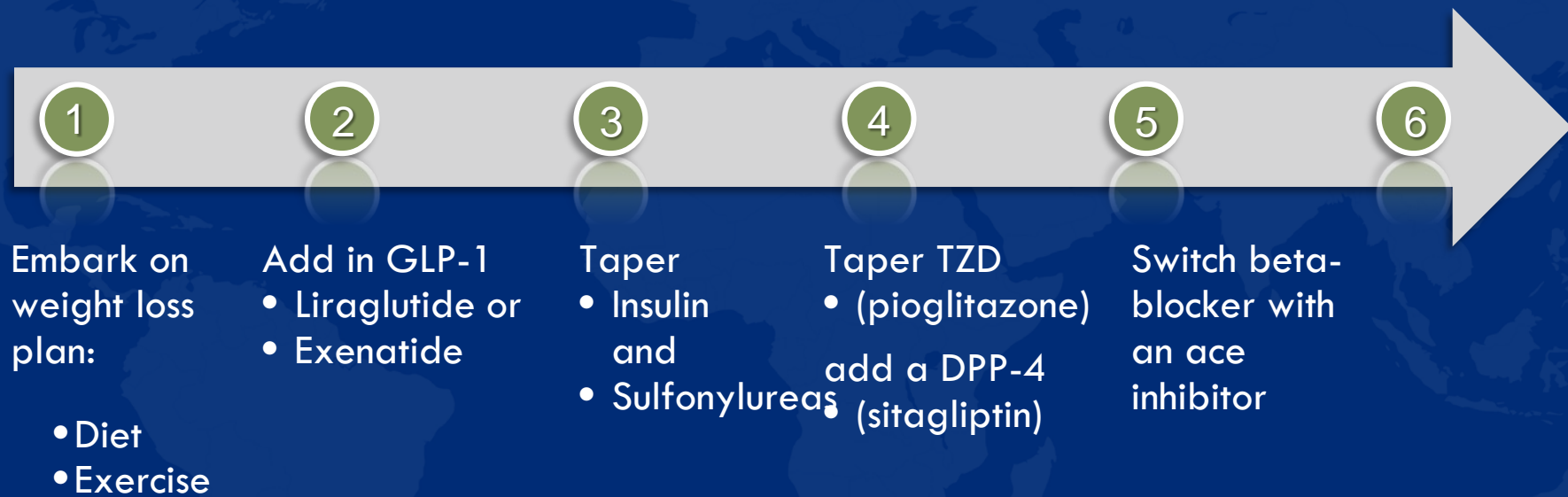
# Overweight/Obese Patient with T2DM

## Who is on insulin



# Overweight/Obese Patient with T2DM

Who is hypertensive, has depression on insulin, and a sulfonylurea



# Overweight/Obese Patients with CVD

Use agents without cardiovascular signals

(increased blood pressure and pulse):

- ▶ **Orlistat**
- ▶ **Lorcaserin**
  - Lower risk of increased blood pressure than phentermine/topiramate

# Summary

- ▶ First guideline that specifically names anti-obesity medications and recommended doses
- ▶ Patient selection criteria:
  - BMI  $\geq 27$  kg/m<sup>2</sup> with one comorbidity
  - BMI  $\geq 30$  kg/m<sup>2</sup> with no comorbidities
- ▶ Diet, exercise and behavior modification is the foundation of any weight management plan
- ▶ Provides a blueprint on medications that cause weight gain and their alternatives
- ▶ New paradigm: treat weight first, then comorbid condition(s)

# III. Case Discussions



# Case 1

55-year-old male with metabolic syndrome

## CC:

Cannot lose weight despite personal training 3x/week

**FH:** DM and CAD

## Medications

- Atenolol 50 mg
- Valsartan
- Glipizide 5 BID
- Pioglitazone
- Metformin 500 BID
- Atorvastatin
- Insulin - glargine 20 units/night

## Lab Data

- Weight 264 lbs
- Height 5' 10"
- BMI 38 kg/m<sup>2</sup>
- WC 45 in
- BP 150/95
- HbA1c 7.2%
- FBG 150-175 mg/dL
- TC 220 mg/dL
- TG 300 mg/dL
- LDL-C 130 mg/dL
- HDL-C 40 mg/dL

# Case 1 – Discussion

55-year-old male with metabolic syndrome

An obese, 55 year old man with metabolic syndrome due to hypertension, diabetes and elevated lipids is having trouble losing weight on his own through lifestyle interventions. He has hired a personal trainer, working out three times a week, to no avail. He takes seven medications to control his comorbidities.

Path number one for the provider would be to evaluate his medications to see if there are any that exacerbate weight gain, and to consider alternatives.

He is a candidate for bariatric surgery because of his Type 2 DM and BMI between 35 and 40. Adding obesity pharmacology to his exercise routine with a low-calorie, high-protein diet would be an important first step.

# Case 1 – Discussion (cont.)

The medications to stop and/or reduce while undergoing weight loss with a high protein / low-carbohydrate diet, would be the anti hyperglycemic agents: insulin, glipizide and pioglitazone. Slowly reduce these medications based on blood glucose, one at a time, by one-half dose at a time.

During downtitration, Metformin can be maximized to 1000 mg a day, and a GLP-1 agonist like liraglutide or exenatide could be added.

Continue to downtitrate antihyperglycemic medications that cause weight gain until most or all have been stopped.

He should also be weaned off atenolol if possible, replacing with another agent such as a thiazide diuretic.

Should weight loss plateau after these changes, obesity pharmacology can be added such as lorcaserin or phentermine/topiramate combination.

# Case 1 – Questions

55-year-old male with metabolic syndrome

**Before starting a low-calorie diet, you would stop:**

1. Pioglitazone
2. Glipizide
3. Atenolol
4. Metformin
5. Insulin

**Which of his medications cause weight gain?**

1. Atenolol
2. Diovan
3. Glypizide 5 BID
4. Actos

# Case 1 – Answers

55-year-old male with metabolic syndrome

Before starting a low-calorie diet, you would stop:

1. Pioglitazone

2. **Glipizide**

3. Atenolol

4. Metformin

5. **Insulin**

Which of his medications cause weight gain?

1. **Atenolol**

2. Diovan

3. **Glipizide 5 BID**

4. **Actos**

# Case 2

61-year-old female with post menopausal weight gain

- Severe obesity, referred for surgery
- Asthma, arthritis, fibromyalgia
- Undiagnosed high blood pressure

## **FH** Obesity

### Medications

- Zafirlukast
- Albuterol inhaler
- Metoprolol
- Loratadine
- Etodolac
- Nortriptyline
- Paroxetine
- Vitamin B, MVI, Calcium

### Lab Data

- |          |                      |
|----------|----------------------|
| • Weight | 200 lbs              |
| • Height | 5' 5"                |
| • BMI    | 33 kg/m <sup>2</sup> |
| • WC     | 34 in                |
| • BP     | 160/95               |
| • HbA1c  | 5.9                  |
| • FBG    | 105 mg/dL            |
| • TC     | 250 mg/dL            |
| • TG     | 260 mg/dL            |
| • LDL-C  | 150 mg/dL            |
| • HDL-C  | 50 mg/dL             |



# Case 2 – Discussion

61-year-old female with post menopausal weight gain

Weighing 200 pounds on a 5' 5" frame, this 61 year old woman is severely obese and has been referred for bariatric surgery. She has gained weight steadily since the onset of menopause and is on an array of medications to control her comorbidities (zafirlukast, albuterol inhaler, loratadine, etodolac, nortriptyline, metoprolol and paroxetine).

With a BMI of 33 she does not meet the surgical criteria (BMI  $\geq 40$ , or 35 with comorbidities) therefore, she is a candidate for diet, exercise and behavior therapy with or without a pharmacological option. She is also on an anti-depressant (paroxetine) which can cause weight gain. Replace paroxetine with a celexa or lexapro.



## Case 2 – Discussion (cont.)

Her asthma and arthritis will improve with weight loss, as will her high blood pressure and her metoprolol can be weened off as she loses weight. Elevated lipids will also improve.

If she is on phentermine/topiramate combination, blood pressure must be monitored carefully as it is already elevated.

If lorcaserin is considered use with extreme caution due to the risk of serotonin syndrome because she is on a SSRI. Also pertinent for serotonin-norepinephrine reuptake inhibitors (SNRIs), monoamine oxidase inhibitors (MAOIs), triptans, bupropion, dextromethorphan, St. John's Wort).

Her lipids and asthma suggests she is in a chronic state of inflammation which may also improve with weight loss.

# Case 2 – Questions

61-year-old female with postmenopausal weight gain

**Which comorbidities should improve with weight loss?**

1. Asthma
2. Arthritis
3. Fibromyalgia
4. Hypertension

**Which of her medications can cause weight gain?**

1. Zafirlukast
2. Loratadine
3. Etodolac
4. Paroxetine

# Case 2 – Questions

61-year-old female with postmenopausal weight gain

Which comorbidities should improve with weight loss?

1. **Asthma**

2. **Arthritis**

3. Fibromyalgia

4. **Hypertension**

Which of her medications can cause weight gain?

1. Zafirlukast

2. Loratadine

3. Etodolac

4. **Paroxetine**

# Case 3

27-year-old female post breast feeding weight gain

## Medications

- Prenatal vitamins

## Lab Data: Baseline

- Weight was 150 lbs
- Weight now 185 lbs
- Height 5' 5"
- BMI was 25 kg/m<sup>2</sup>
- BMI now 31 kg/m<sup>2</sup>
  
- All other parameters normal

35 lb  
weight  
gain

from  
Overweight  
to Obese

# Case 3 - Discussion

27-year-old female post breast feeding weight gain

A 27 year old woman has gained 35 pounds since stopping breast feeding several months ago. Her pre-pregnancy weight was 150 at a BMI of 25. She now weighs 185 with a BMI of 31 and she is looking to her get back to her pre-pregnancy weight. All her other parameters are normal.

With a BMI of 31 she is a candidate for diet, exercise, behavioral therapy - with or without an obesity medication.

She is a candidate for either phentermine/topiramate combination or lorcaserin.

A weight loss of 10% is what would be considered successful (~ 20 lbs). It is conceivable that she could achieve pre-pregnancy weight loss. At that point a decision would have to be made with patient and the provider as to if and when to stop the obesity medication, and monitor for weight regain.

# Case 3 – Questions

27-year-old female post breast feeding weight gain

**If this patient reaches her pre-pregnancy weight of 150 pounds, what will be her % excess weight loss?**

1. 19%
2. 100%
3. 40%
4. 50%

**If this patient reaches her pre-pregnancy weight of 150 pounds, what will be her % total weight loss?**

1. 19%
2. 100%
3. 40%
4. 50%



# Case 3 – Questions

27-year-old female post breast feeding weight gain

If this patient reaches her pre-pregnancy weight of 150 pounds, what will be her % excess weight loss?

1. 19%
2. **100%**
3. 40%
4. 50%

If this patient reaches her pre-pregnancy weight of 150 pounds, what will be her % total weight loss?

1. **19%** (35 divided by 185 = 19%)
2. 100%
3. 40%
4. 50%



# Case 4

50-year-old female post gastric bypass weight gain

## CC:

- Lost 100 pounds with surgery
- 2 years post surgery 40 lb gain
- Blood glucose creeping up
- Pouch dilatation

## Pre-op Medications

- Metformin
- Glipizide

**Hx:** Diabetes, for 3 years pre-surgery

	Pre-surgery	1 Year post Surgery	2 Years Post Surgery
Height 5'4"			
<b>BMI</b>	41 kg/m <sup>2</sup>	24 kg/m <sup>2</sup>	31 kg/m <sup>2</sup>
<b>Weight</b>	240 lbs	140 lbs	180 lbs
<b>FBG</b>	135 mg/dL	94 mg/dL	120 mg/dL
<b>HbA1c</b>	10%	5%	6.5%

40 lb weight gain in 2 years  
from Normal to Pre-diabetes

# Case 4 – Discussion

50-year-old female post gastric bypass weight gain

A 50 year old woman underwent a successful gastric bypass two years earlier. She has gained 35 pounds since her surgery. Her diabetes, which resolved after surgery, is back to a pre-diabetes level.

She should be monitored on a high protein, low-carbohydrate diet<sup>1</sup>, and given an exercise regimen.

Consider re-starting metformin and perhaps adding a GLP-1 agonist as well.

Follow-up on her metformin and GLP-1. She should be losing 1-2 pounds of weight loss per week. After 3 months, she should have lost 12-20 pounds; if she has not - consider phentermine/topiramate combination or lorcaserin.

# Case 3 – Questions

50-year-old female post gastric bypass weight gain

**This patient should be placed back on:**

1. Metformin
2. Glipizide
3. Both above
4. None of the above

**What other information is needed to work up this case?**

1. More diet history
2. Upper GI series
3. CT scan of abdomen
4. MRI of abdomen

# Case 3 – Questions

50-year-old female post gastric bypass weight gain

This patient should be placed back on:

1. **Metformin**
2. Glipizide
3. Both above
4. None of the above

What other information is needed to work up this case?

1. **More diet history**
2. Upper GI series
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