VA/DoD Evidence-based Clinical Practice Guideline for Screening and Management of Overweight and Obesity

Guideline Summary

Essential Elements of Weight Management

1. Obesity is a chronic disease requiring lifelong commitment to treatment and long-term maintenance
2. Obesity may not be the chief complaint in a patient encounter, yet it requires foremost attention
3. The primary care team plays an integral role in weight management
4. Screening, documentation, and regular assessment are critical to weight management
5. Assessment for obesity-associated chronic health conditions is an essential component of treatment decisions
6. Shared decision-making and assessment of patient motivation are fundamental to weight management
7. Comprehensive lifestyle intervention is central to successful and sustained weight loss
8. Tangible intermediate and long-term weight loss goals are critical to weight loss success
9. Energy deficit should be achieved through decreased caloric intake and increased physical activity
10. Pharmacotherapy and bariatric surgery may be considered as adjuncts to comprehensive lifestyle intervention

Executive Summary

Obesity and associated chronic health conditions cause significant morbidity and negatively impact military readiness. Sixty-one to 83% of Department of Defense (DoD) beneficiaries and 78% of Veterans are overweight or obese, and excess weight is estimated to cost at least $370 per patient per year in additional medical and non-medical costs. Treatment of both overweight and obesity is consistent with the priorities outlined by the leadership of the Department of Veterans Affairs as a part of personalized, proactive Veteran-driven care. Similarly, it is consistent with the DoD's priority for a fit fighting force and embodied in the US Army's Performance Triad of Nutrition, Physical Activity, and Sleep. Moreover, screening, treatment, and follow-up of overweight and obesity can be successfully managed in the primary care setting with an interdisciplinary approach.

Overweight and obesity are typically identified through screening or as a result of presentation for obesity-associated chronic health conditions. Routine screening should include measurement of height and weight to calculate body mass index (BMI) in all patients. Normal adult weight is defined by a BMI of 18.5-24.9 kg/m^2. Overweight is defined by a BMI between 25.0 and 29.9 kg/m^2. Obesity is defined by a BMI $\geq$ 30.0 kg/m^2 and can be sub-classified as Stage 1 (BMI 30.0 to 34.9 kg/m^2), Stage 2 (BMI 35.0 to

39.9 kg/m^2), or Stage 3 (BMI $\geq$ 40 kg/m^2). Measurement of waist circumference may also be useful to predict risk in overweight and obese patients as it is considered a comorbidity equivalent. In these patients, the presence of obesity-associated chronic health conditions should be identified. Normal weight and overweight patients without obesity-associated chronic health conditions may be offered education, information, and counseling about a healthy lifestyle and maintaining or achieving a healthy weight. Comprehensive lifestyle intervention for weight loss should be offered to all obese patients and overweight patients with obesity-associated chronic health conditions.

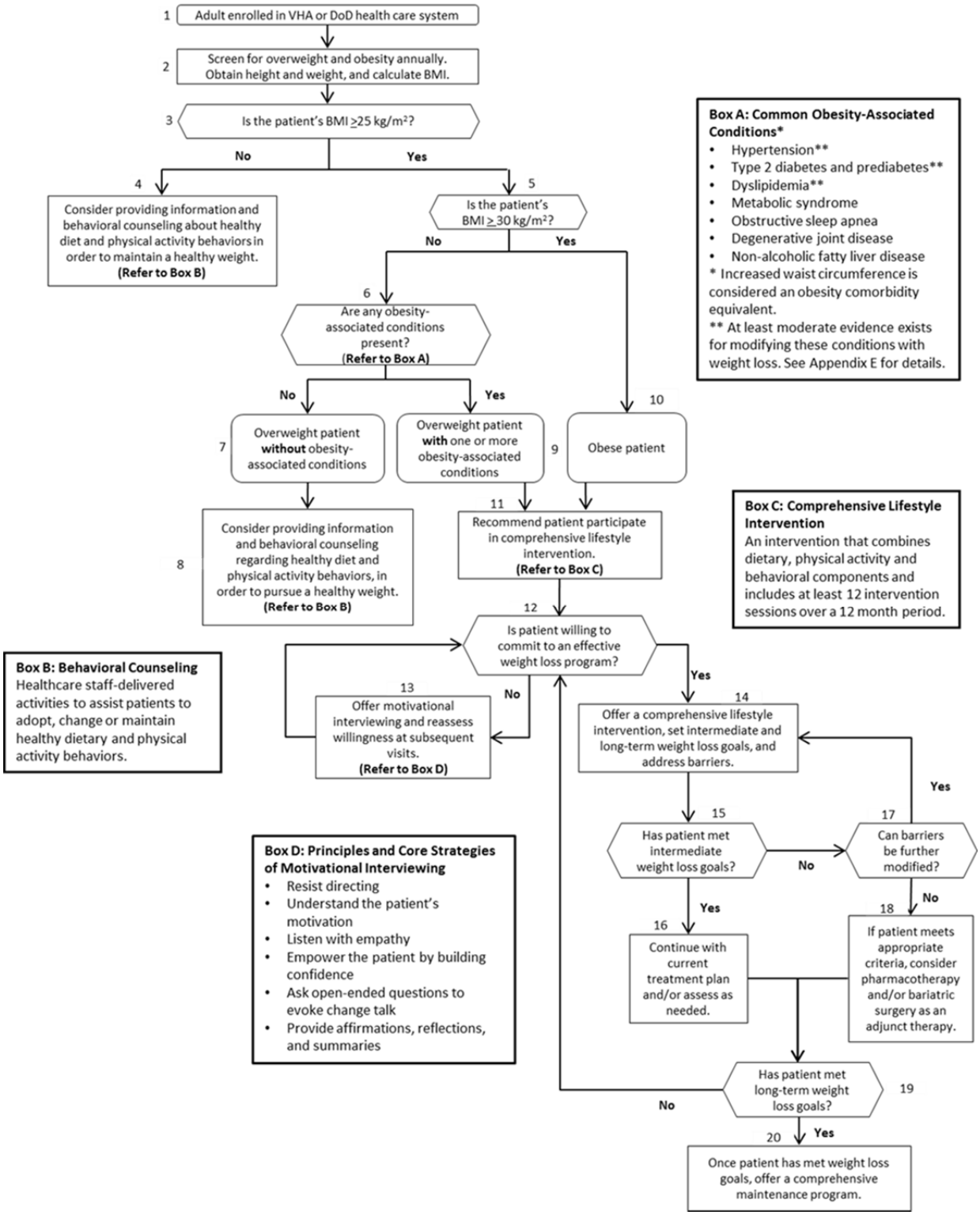
Comprehensive lifestyle intervention is the foundation of treatment for overweight and obesity and should include at least 12 contacts over a year of an intervention that combines dietary, physical activity and behavioral components. Diet and physical activity together must create an energy deficit of 500-1000 kcal/day for effective weight loss. Adherence to any particular calorie-deficit diet is more important than choice of a specific diet. Physical activity, through short bursts of activity or a single longer episode, typically must accumulate to at least 150 minutes per week. On average, weight loss will occur at the rate of 0.5 to 2 pounds per week, plateauing between three and six months. After a plateau is reached, reassessment for weight maintenance or additional weight loss is required.

A shared decision-making model should be employed to reach a mutual understanding of risks and benefits of treatment, to explore patient priorities, and to determine if a patient is willing to commit to an intervention. For a patient who is unwilling, a motivational intervention should be used and reassessment should be undertaken at least biannually. For a patient who is willing to participate in an intervention, an individualized plan should be formulated, tangible intermediate and long-term weight loss goals must be identified, and frequent reassessment should be arranged.

Continued treatment should be guided by a patient's intermediate weight loss goals. Patients who are meeting goals should continue current treatment until long-term weight loss goals are achieved. For patients not meeting intermediate goals, the treatment plan should be modified to address any barriers to treatment adherence. When no further amelioration of barriers is possible and weight loss has plateaued, adjunctive interventions such as pharmacotherapy or referral for bariatric surgery may be considered in select patients. Patients who do not complete intensive treatment should be offered a motivational intervention and reassessed at least biannually. All patients reaching their long-term goals should be offered a maintenance program, ongoing support, and periodic reassessment.

Weight loss treatment for overweight and obesity can be effectively delivered through an interdisciplinary approach in a primary care setting. Comprehensive lifestyle intervention alone and comprehensive lifestyle intervention with adjunctive pharmacotherapy or bariatric surgery are effective for many. Though providing these interventions will require upfront resources from health-care systems, they have the potential to reduce lifetime medical costs. Through effective management, morbidity from obesity-associated chronic health conditions can be reduced and military readiness improved.

Algorithm


1 Adult enrolled in VHA or DoD health care system
2 Screen for overweight and obesity annually. Obtain height and weight, and calculate BMI.
3 Is the patient's BMI ≥25 kg/m²?
No
Yes
4 Consider providing information and behavioral counseling about healthy diet and physical activity behaviors in order to maintain a healthy weight. (Refer to Box B)
5 Is the patient's BMI ≥30 kg/m²?
No
Yes
6 Are any obesity-associated conditions present? (Refer to Box A)
No
Yes
7 Overweight patient without obesity-associated conditions
8 Consider providing information and behavioral counseling regarding healthy diet and physical activity behaviors, in order to pursue a healthy weight. (Refer to Box B)
9 Overweight patient with one or more obesity-associated conditions
10 Obese patient
11 Recommend patient participate in comprehensive lifestyle intervention. (Refer to Box C)
12 Is patient willing to commit to an effective weight loss program?
No
13 Offer motivational interviewing and reassess willingness at subsequent visits. (Refer to Box D)
Yes
14 Offer a comprehensive lifestyle intervention, set intermediate and long-term weight loss goals, and address barriers.
15 Has patient met intermediate weight loss goals?
No
17 Can barriers be further modified?
Yes
No
Yes
16 Continue with current treatment plan and/or assess as needed.
18 If patient meets appropriate criteria, consider pharmacotherapy and/or bariatric surgery as an adjunct therapy.
19 Has patient met long-term weight loss goals?
No
Yes
20 Once patient has met weight loss goals, offer a comprehensive maintenance program.
Box A: Common Obesity-Associated Conditions*
• Hypertension**
• Type 2 diabetes and prediabetes**
• Dyslipidemia**
• Metabolic syndrome
• Obstructive sleep apnea
• Degenerative joint disease
• Non-alcoholic fatty liver disease
* Increased waist circumference is considered an obesity comorbidity equivalent.
** At least moderate evidence exists for modifying these conditions with weight loss. See Appendix E for details.
Box B: Behavioral Counseling
Healthcare staff-delivered activities to assist patients to adopt, change or maintain healthy dietary and physical activity behaviors.
Box C: Comprehensive Lifestyle Intervention
An intervention that combines dietary, physical activity and behavioral components and includes at least 12 intervention sessions over a 12 month period.
Box D: Principles and Core Strategies of Motivational Interviewing
• Resist directing
• Understand the patient's motivation
• Listen with empathy
• Empower the patient by building confidence
• Ask open-ended questions to evoke change talk
• Provide affirmations, reflections, and summaries

Clinical Practice Guideline Recommendations

Recommendation	GRADE
Screening and Assessment	
1. Screen adult patients to establish a diagnosis of overweight or obesity by calculating body mass index (BMI), and document the presence of overweight or obesity in the medical record.	B
2. Screen for overweight and obesity at least annually.	EO
3. Assess for the presence of obesity-associated conditions among overweight patients or patients with increased waist circumference.	B
4. Perform a targeted assessment on overweight and obese patients. In addition to the basic medical history and physical examination, assess for factors contributing to obesity.	EO
Normal Weight Patients	
5. Consider providing normal weight patients with information and behavioral counseling regarding healthy diet and physical activity behaviors, in order to maintain a healthy weight.	C
Overweight Patients Without Obesity-Associated Condition(s)	
6. Consider providing overweight patients without obesity-associated conditions with information and behavioral counseling regarding healthy diet and physical activity behaviors, in order to pursue a healthy weight.	C
Overweight Patients With Obesity-Associated Condition(s)	
7. Offer comprehensive lifestyle intervention to achieve weight loss and to improve blood pressure and/or glucose control in overweight patients.	A
8. Offer comprehensive lifestyle intervention to overweight patients with dyslipidemia for weight loss and to improve lipid levels.	B
9. Current evidence is insufficient to recommend for or against offering comprehensive lifestyle intervention for weight loss to overweight patients with degenerative joint disease, non-alcoholic fatty liver disease, and/or obstructive sleep apnea to reduce harms of these conditions.	I
Obese Patients	
10. Offer obese patients comprehensive lifestyle intervention for weight loss to improve lipid levels, blood pressure, and/or glucose control.	A
11. Offer obese patients comprehensive lifestyle intervention for weight loss to reduce harms of obstructive sleep apnea.	B
12. Consider offering obese patients comprehensive lifestyle intervention for weight loss to reduce harms of degenerative joint disease.	C
13. Current evidence is insufficient to support weight loss through comprehensive lifestyle intervention for reducing harms of non-alcoholic fatty liver disease.	I
Shared Decision-Making	
14. Reach a shared understanding with overweight and obese patients about the risks of overweight and obesity, and the benefits of weight management.	EO
General Treatment Principles of Weight Loss	

Recommendation	GRADE
15. Perform an in-depth clinical assessment in order to assess the risks and benefits of different weight management treatments and to develop a weight management plan.	EO
16. Use motivational interviewing techniques to evoke patient motivation to accept and participate in weight loss treatments.	EO
17. Convey the importance of weight loss and maintenance as a lifelong commitment rather than a brief episode of treatment.	EO
18. Offer patients at least 12 contacts within 12 months of a comprehensive lifestyle intervention that combines dietary, physical activity and behavioral strategies.	B
19. Plan a net deficit of 500 to 1,000 kcal/day addressing both diet and physical activity to achieve a weight loss of 0.5 to 2 pounds per week, resulting in a 5-10% reduction in body weight over 6 months.	A
20. Assess adherence to the weight loss program one-to-two times per month by measuring the patient's weight and providing feedback and ongoing support.	EO
21. Re-evaluate the treatment plan for patients who have lost an average of less than 0.5 pound per week.	EO
22. Offer patients who have met their weight loss goals a comprehensive maintenance program consisting of behavioral components and ongoing support.	B
Behavioral and Lifestyle Approaches	
23. Offer comprehensive lifestyle interventions for weight loss, in either individual or group setting.	B
24. Offer telephone-based comprehensive lifestyle intervention for weight loss, either as an alternative or an adjunct to face-to-face intervention.	B
25. There is insufficient evidence for or against offering internet-based comprehensive lifestyle intervention for weight loss, as an alternate or adjunct to face-to-face intervention.	I
Dietary Approaches	
26. Offer any of several diets that produce a caloric deficit and have evidence for weight loss efficacy and safety (e.g., low-carbohydrate, Dietary Approaches to Stop Hypertension (DASH), low-fat).	A
27. Offer very-low-calorie diets for weight loss, but only for short durations (12-16 weeks) and under close medical supervision.	B
28. Offer meal replacements to achieve low-calorie or very low-calorie diets.	A
Physical Activity Approaches	
29. Offer physical activity elements (e.g., home fitness, lifestyle, or structured/supervised physical activities) that can be combined to produce a caloric deficit leading to weight loss.	A
30. Offer physical activity options that include short intermittent bursts (at least 10 minutes) as well as longer continuous exercise.	A
31. Offer, as part of a comprehensive lifestyle intervention, moderate-intensity physical activity performed for at least 150 minutes/week to result in weight loss.	A
32. Offer, as part of comprehensive lifestyle intervention, moderate-intensity physical	EO

Recommendation	GRADE
activity performed for 200-300 minutes per week to prevent weight regain after initial weight loss.	
Pharmacotherapy	
33. Offer pharmacotherapy with the combination phentermine/topiramate extended-release to patients with a body mass index (BMI) ≥30 kg/m^2 and to those with a BMI ≥27 kg/m^2 who also have obesity-associated conditions, as an adjunct to comprehensive lifestyle intervention, when lifestyle interventions alone do not produce the desired weight loss.	A
34. Offer pharmacotherapy with orlistat or lorcaserin to patients with a body mass index (BMI) ≥30 kg/m^2 and to those with a BMI ≥27 kg/m^2 who also have obesity-associated conditions, as an adjunct to comprehensive lifestyle intervention, when lifestyle interventions alone do not produce the desired weight loss.	B
35. Offer pharmacotherapy (i.e., orlistat, lorcaserin, combination phentermine/topiramate extended-release) as an adjunct to comprehensive lifestyle intervention, to patients with obesity-associated conditions, for its beneficial effects on type 2 diabetes, hypertension, and/or dyslipidemia.	B
36. Offer patients who achieve their weight loss goal a program that includes continued use of medication for weight maintenance.	B
Bariatric Surgery	
37. Offer bariatric surgery, as an adjunct to comprehensive lifestyle intervention, for weight loss in adult patients with a body mass index (BMI) >40 kg/m^2 or those with BMI 35.0-39.9 kg/m^2 with one or more obesity-associated conditions.	A
38. Offer bariatric surgery, as an adjunct to comprehensive lifestyle intervention, to improve some obesity-associated conditions in adult patients with a body mass index (BMI) ≥35.0 kg/m^2.	A
39. Current evidence is insufficient to assess the balance of benefits and harms of offering bariatric surgery as an adjunct to comprehensive lifestyle intervention, for weight loss or to improve some obesity-associated conditions, to patients over age 65 or with a body mass index (BMI) <35 kg/m^2.	I
40. Engage all patients who are candidates for bariatric surgery in a general discussion of the benefits and potential risks. If more detailed information is requested by the patient to assist in the decision-making process, a consultation with a bariatric surgical team should occur.	EO
41. Provide lifelong follow-up after bariatric surgery to monitor adverse effects and complications, dietary restrictions, adherence to weight management behaviors and psychological health.	EO

Classification of Overweight and Obesity by BMI	
Classification	BMI (kg/m^2)*
Underweight	< 18.5
Normal	18.5 – 24.9
Overweight	25.0 – 29.9
Obese I	30.0 – 34.9
Obese II	35.0 – 39.9
Obese III	≥ 40.0
** Disease risk for obesity-associated chronic health conditions is directly correlated with increasing BMI and waist circumference (WC)*	
Gender-specific cut-offs for increased waist circumference: • *Men waist circumference > 40 inches (102 centimeters)* • *Women waist circumference > 35 inches (88 centimeters)*	

Common Obesity-Associated Conditions*
The following conditions are directly influenced by weight: • Hypertension** • Type 2 diabetes and pre-diabetes** • Dyslipidemia** • Metabolic syndrome • Obstructive sleep apnea • Degenerative joint disease • Non-alcoholic fatty liver disease
*Increased waist circumference is considered an obesity comorbidity equivalent ** At least moderate evidence exists for modifying these conditions with weight loss. See Appendix E for details.

Diagnosis of Metabolic Syndrome	
Three or more of the following risk factors indicate metabolic syndrome	Defining Level
Abdominal obesity: • Men* • Women	Waist circumference (WC): Greater than 40 inches (102 centimeters) Greater than 35 inches (88 centimeters)
Triglycerides	Greater than or equal to 150 mg/dL
HDL cholesterol: • Men • Women	 Less than 40 mg/dL Less than 50 mg/dL
Blood pressure	Greater than or equal to 130/85 mmHg
Fasting glucose	Greater than or equal to 100 mg/dL
** Some men can develop multiple metabolic risk factors when the WC is only marginally increased (e.g., 37-39 in (94-102 cm). Such persons may have a strong genetic contribution to insulin resistance, and should benefit from lifestyle changes (i.e., diet, exercise).*	

Weight Loss Interventions Based on Risk and BMI (kg/m^2)			
Patient Classification	**Level 1**	**Level 2**	**Level 3**
BMI $\geq$ 25 kg/m^2 with obesity-associated chronic health condition(s)*	Diet, exercise, and behavior modification		
BMI $\geq$ 30 kg/m^2 or BMI $\geq$ 27 kg/ m^2 with obesity-associated condition(s)*	Diet, exercise, and behavior modification	Consider drug therapy	
BMI $\geq$ 40 kg/m^2 or BMI $\geq$ 35 kg/ m^2 with obesity-associated condition(s)*	Diet, exercise, and behavior modification	Consider drug therapy	Consider surgery
** Obesity-associated conditions are listed in Table 2*			

Upper Limit Border Points for Category of Overweight/Obesity By Height (inches)					
BMI (kg/m^2)	**25**	**30**	**35**	**40**	**45**
Height			**Stage 1**	**Stage 2**	**Stage 3**
(inches)	**Normal**	**Overweight**	**Obese**		
58	119	143	167	191	215
59	124	148	173	198	222
60	128	153	179	204	230
61	132	158	185	211	238
62	136	164	191	218	246
63	141	169	197	225	254
64	145	174	204	232	262
65	150	180	210	240	270
66	155	186	216	247	278
67	159	191	223	255	287
68	164	197	230	262	295
69	169	203	236	270	304
70	174	209	243	278	313
71	179	215	250	286	322
72	184	221	258	294	331
73	189	227	265	302	340
74	194	233	272	311	350
75	200	240	279	319	359
76	205	246	287	328	369
Adapted from *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report*					

Table 7: Recommended Dosage for Selected Obesity Drug Therapy Each drug is indicated if the patient's BMI is ≥30 kg/m^2 or >27 kg/m^2 in the presence of 1 or more obesity-associated conditions		
Drug	**Recommended Dosage and Administration**	**Contraindications and Cautions**
Orlistat 120 mg capsule	120 mg, three times a day • Taken with or within 1 hour of each meal containing fat • Omit dose if a meal is skipped or a meal contains no fat • Take daily multivitamin (containing fat soluble vitamins A, D, E, and K at least two hours prior to orlistat	• Contraindicated during pregnancy (FDA category X) • Not recommended for mothers who are nursing • Increased gastrointestinal adverse effects when taken with diets high in fat (greater than 30% of total daily calories from fat) Drug Interactions: • Cyclosporine's concentrations may be reduced; monitor and adjust dose as necessary. Take cyclosporine 2 hours before or after orlistat. • May decrease absorption of some fat soluble vitamins (A, D, E, and K). Levels of vitamin D and beta-carotene may be low in obese patients compared with non-obese subjects. • Patients taking warfarin should be monitored closely and warfarin dose adjusted accordingly • Levothyroxine: monitor for changes in thyroid function • Anticonvulsant efficacy may be reduced
Lorcaserin 10 mg tablet	10 mg two times a day • Maximum 20 mg/day • May be taken without regard to food • Consider stopping after 12 weeks if orlistat has not been effective in reducing weight more than 5% of initial body weight Dose in Patients with Renal Impairment • Not recommended in severe renal impairment or end stage renal disease Dose in Patients with Hepatic	• Contraindicated during pregnancy (FDA category X) • Not recommended for mothers who are breastfeeding • Serotonin syndrome or neuroleptic malignant syndrome (NMS)-like reactions are theoretically possible • Extreme caution is advised if lorcaserin is combined with serotonergic or antidopaminergic drugs • Use with caution in patients with valvular heart disease,

Table 7: Recommended Dosage for Selected Obesity Drug Therapy Each drug is indicated if the patient's BMI is ≥30 kg/m^2 or >27 kg/m^2 in the presence of 1 or more obesity-associated conditions		
Drug	**Recommended Dosage and Administration**	**Contraindications and Cautions**
	Impairment • Has not been studied in severe hepatic impairment; use with caution.	• bradycardia, congestive heart failure, or those using drugs known to be 5-HT$_{2B}$ agonists • Potential for cognitive impairment and psychiatric reactions including sedation, euphoria and suicidal thoughts • Potential risk of hypoglycemia in patients being treated for diabetes • As a 5-HT$_{2C}$ receptor agonists, use with caution in patients predisposed to priapism or using PDE-5 inhibitors • Risk for anemia, neutropenia, hyperprolactinemia Drug Interactions • Theoretical risk for serotonin syndrome such as with concomitant SSRIs/SNRIs • Moderate CYP 2D6 inhibitor
Phentermine/topiramate 3.75 mg/23 mg, 7.5 mg/46 mg, 11.25 mg/69 mg, 15 mg/92 mg Extended-release capsules (ER caps)	Dose Titration • One 3.75 mg/23 mg ER cap each morning for 14 days; then increase to 7.5 mg/46 mg each morning for an additional 12 weeks. • If a weight loss of 3% of baseline body weight is not achieved discontinue or increase the dose to 11.25 mg/69 mg each morning for 14 days; then increased to 15 mg/92 mg (maximum dose) each daily. • If after 12 weeks on 15 mg/92 mg the patient has not lost at least 5% of baseline body weight, discontinue treatment using every other day weaning over one week thereby decreasing risk of seizure Dose in Patients with Renal	• Contraindicated during pregnancy (FDA category X) and use not recommended in breastfeeding mothers • Avoid use in glaucoma, hyperthyroidism, or within 14 days following use of a MAOI • Not recommended in patients with unstable cardiac or cerebrovascular disease • Potential for cognitive, mood and sleep disorders and topiramate-related general class warning for suicidal thoughts • Potential for metabolic acidosis and elevated creatinine • Potential risk of hypotension, CNS depression, hypokalemia, kidney stones, withdrawal seizures, and hypoglycemia in patients being treated for diabetes

Table 7: Recommended Dosage for Selected Obesity Drug Therapy Each drug is indicated if the patient's BMI is ≥30 kg/m^2 or >27 kg/m^2 in the presence of 1 or more obesity-associated conditions		
Drug	**Recommended Dosage and Administration**	**Contraindications and Cautions**
	Impairment • Do not exceed 7.5 mg/46 mg once daily if creatinine clearance <50mL/min, and avoid in severe renal disease Doses in Patients with Hepatic Impairment • The dose in moderate hepatic impairment (Child-Pugh 7-9) should not exceed 7.5 mg/46 mg once daily, and avoid use in severe hepatic impairment	Drug Interactions • MAOI – phentermine is contraindicated during or within 14-days following administration of a MAOI • Oral contraceptives – a reduction in contraceptive efficacy is not anticipated but irregular bleeding (spotting) may be more frequent • Antiepileptic drugs – use with caution

Schedule for Clinical and Biochemical Monitoring *

	Preoperative	1 month	3 months	6 months	12 months	18 months	24 months	Annually
Complete blood count	X	X	X	X	X	X	X	X
LFTs	X	X	X	X	X	X	X	X
Glucose	X	X	X	X	X	X	X	X
Creatinine	X	X	X	X	X	X	X	X
Electrolytes	X	X	X	X	X	X	X	X
Iron/ferritin	X			X[a]	X[a]	X[a]	X[a]	X[a]
Vitamin B12	X			X[a]	X[a]	X[a]	X[a]	X[a]
Folate	X			X[a]	X[a]	X[a]	X[a]	X[a]
Calcium	X			X[a]	X[a]	X[a]	X[a]	X[a]
Intact PTH	X			X[a]	X[a]	X[a]	X[a]	X[a]
25-D	X			X[a]	X[a]	X[a]	X[a]	X[a]
Albumin/prealbumin	X			X[a]	X[a]	X[a]	X[a]	X[a]
Vitamin A	X						Optional	Optional
Zinc	X			Optional	Optional		Optional	Optional
Bone mineral density and body composition	X				X[a]		X[a]	X[a]
Vitamin B1			Optional	Optional	Optional	Optional	Optional	Optional

Data indicate the suggested schedule for laboratory monitoring after bariatric surgery. LFT, Liver function tests.

[a] Examinations should only be performed after RYGB, BPD, or BPD/DS[†]. All of them are considered as suggested for patients submitted to restrictive surgery where frank deficiencies are less common.

* *Heber et al. Endocrine and Nutritional Management of the Post-Bariatric Surgery Patient: An Endocrine Society Clinical Practice Guideline. Table 2, p. 4827*

[†]*RYGB = Roux-en-Y gastric bypass; BPD = biliopancreatic diversion; BPD/DS = biliopancreatic diversion with duodenal switch*