

# AACE/ACE COMPREHENSIVE TYPE 2 DIABETES MANAGEMENT ALGORITHM

## 2016

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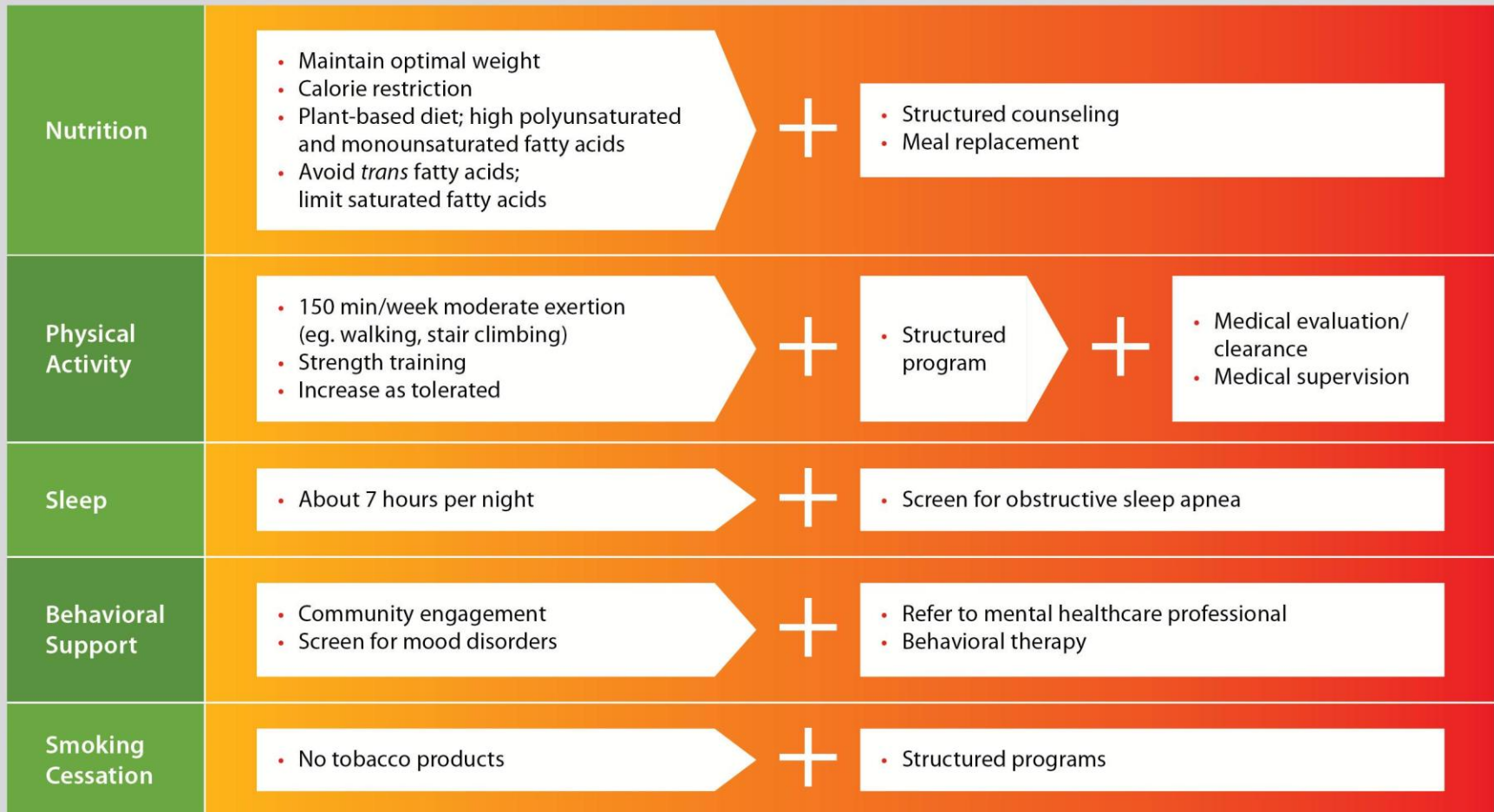
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### INTENSITY STRATIFIED BY BURDEN OF OBESITY AND RELATED COMPLICATIONS



## STEP 1 EVALUATION FOR COMPLICATIONS AND STAGING

CARDIOMETABOLIC DISEASE | BIOMECHANICAL COMPLICATIONS

NO COMPLICATIONS  
BMI  $\geq 25$

COMPLICATIONS

BMI 25–26.9	BMI $\geq 27$ : Stage Severity of Complications	
	MILD TO MODERATE	SEVERE

## STEP 2 SELECT:

Therapeutic targets for improvement in complications	+	Treatment modality	+	Treatment intensity based on staging
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Lifestyle Therapy: Physician/RD counseling, web/remote program, structured multidisciplinary program

Medical Therapy (BMI  $\geq 27$ ): Phentermine, orlistat, lorcaserin, phentermine/topiramate ER, naltrexone/bupropion, liraglutide 3 mg

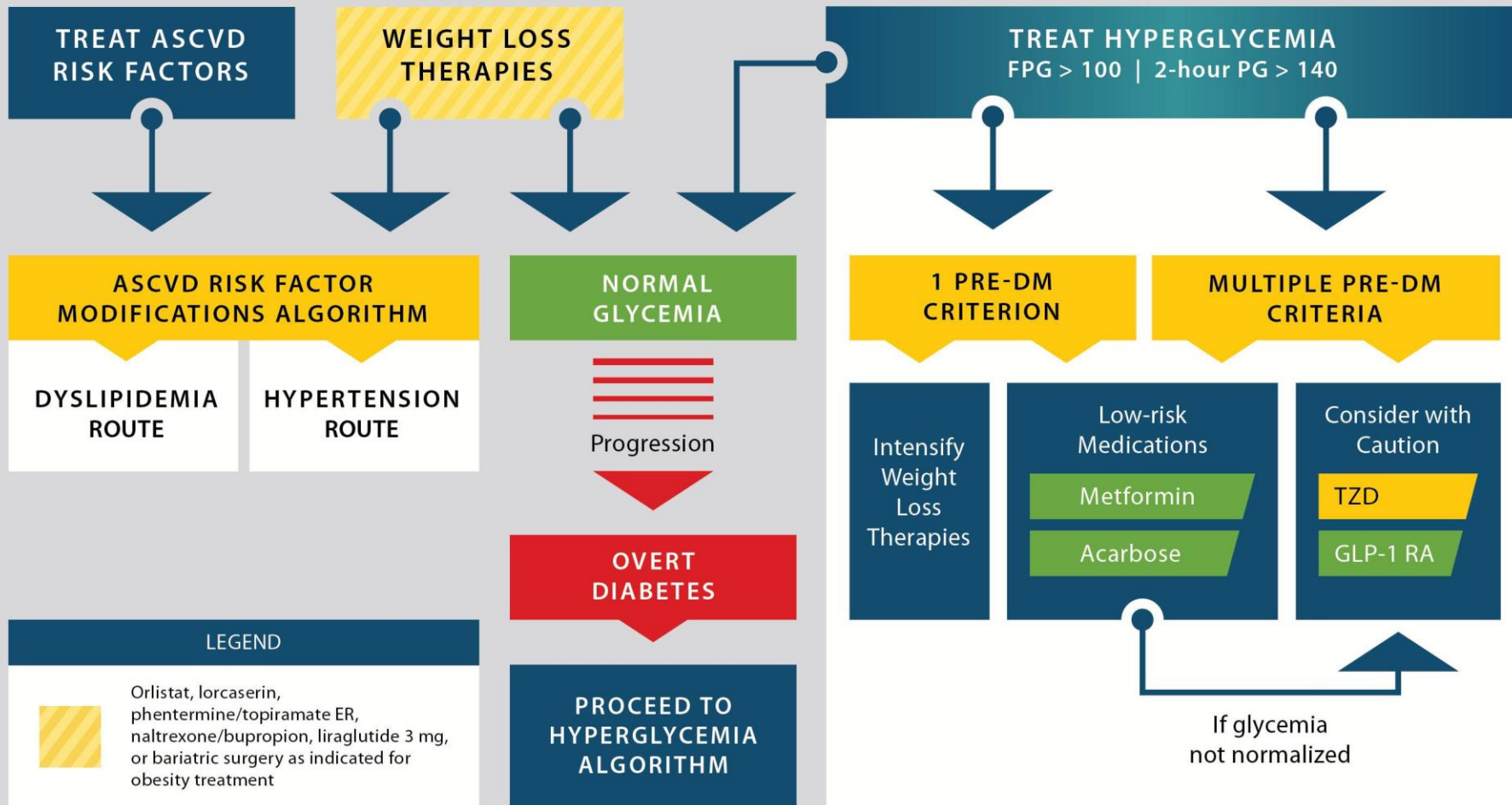
Surgical Therapy (BMI  $\geq 35$ ): Gastric banding, sleeve, or bypass

## STEP 3 If therapeutic targets for complications not met, intensify lifestyle, medical, and/or surgical treatment modalities for greater weight loss.



## LIFESTYLE THERAPY

(Including Medically Assisted Weight Loss)



### LEGEND



Orlistat, lorcaserin, phentermine/topiramate ER, naltrexone/bupropion, liraglutide 3 mg, or bariatric surgery as indicated for obesity treatment

## INDIVIDUALIZE GOALS

**$A1C \leq 6.5\%$**

For patients without  
concurrent serious  
illness and at low  
hypoglycemic risk

**$A1C > 6.5\%$**

For patients with  
concurrent serious  
illness and at risk  
for hypoglycemia

## LIFESTYLE THERAPY (Including Medically Assisted Weight Loss)

Entry A1C < 7.5%

Entry A1C ≥ 7.5%

Entry A1C > 9.0%

### MONOTHERAPY\*

- ✓ Metformin
- ✓ GLP-1 RA
- ✓ SGLT-2i
- ✓ DPP-4i
- ⚠ TZD
- ✓ AGi
- ⚠ SU/GLN

If not at goal in 3 months proceed to Dual Therapy

### DUAL THERAPY\*

**MET**  
or other  
1st-line  
agent

+

- ✓ GLP-1 RA
- ✓ SGLT-2i
- ✓ DPP-4i
- ⚠ TZD
- ⚠ Basal Insulin
- ✓ Colesevelam
- ✓ Bromocriptine QR
- ✓ AGi
- ⚠ SU/GLN

If not at goal in 3 months proceed to Triple Therapy

### TRIPLE THERAPY\*

**MET**  
or other  
1st-line  
agent +  
2nd-line  
agent

+

- ✓ GLP-1 RA
- ✓ SGLT-2i
- ⚠ TZD
- ⚠ Basal insulin
- ✓ DPP-4i
- ✓ Colesevelam
- ✓ Bromocriptine QR
- ✓ AGi
- ⚠ SU/GLN

If not at goal in 3 months proceed to or intensify insulin therapy

### SYMPTOMS

NO YES

- |                |                        |
|----------------|------------------------|
| DUAL Therapy   | INSULIN ± Other Agents |
| OR             |                        |
| TRIPLE Therapy |                        |

**ADD OR INTENSIFY INSULIN**  
Refer to Insulin Algorithm

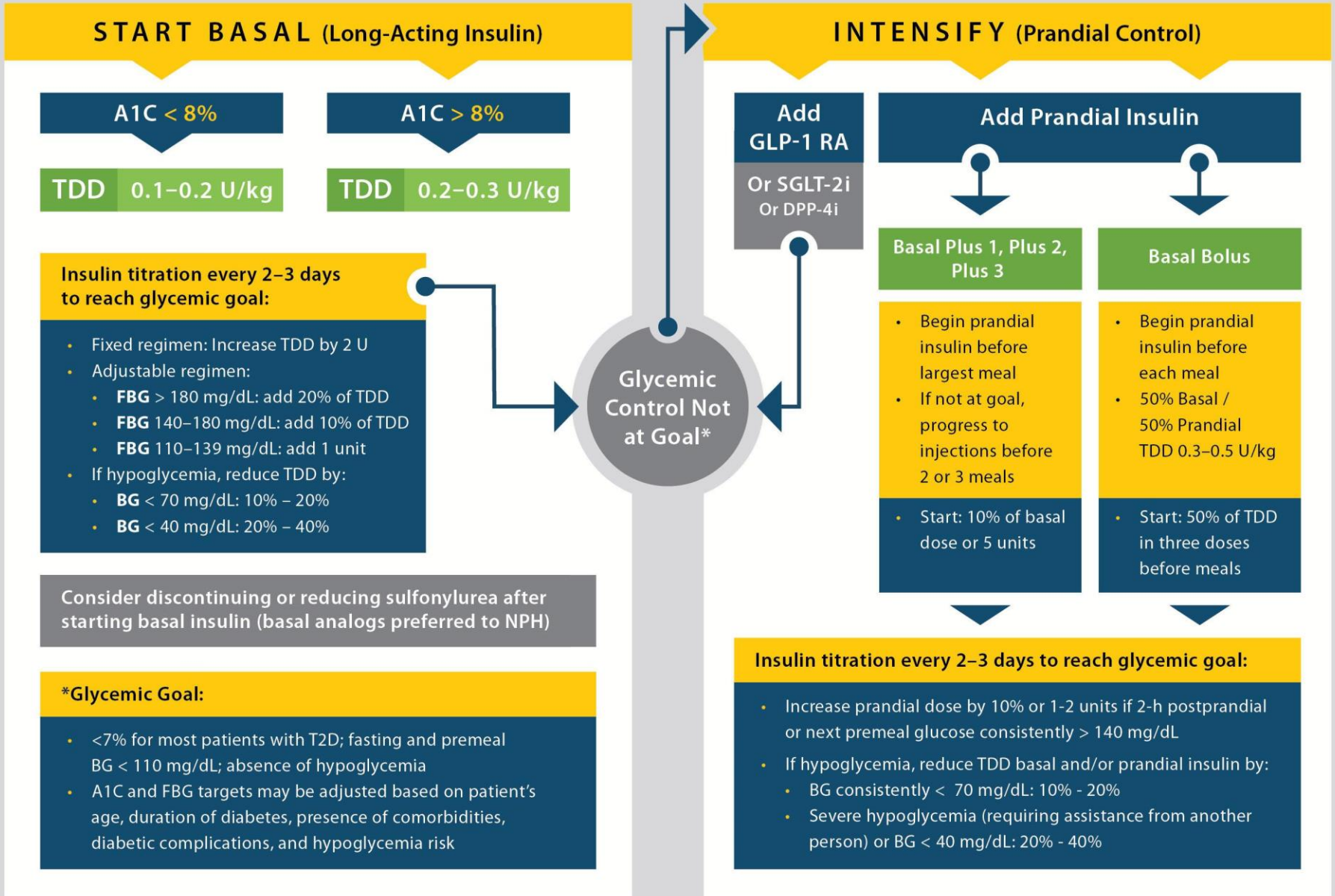
### LEGEND

- ✓ Few adverse events and/or possible benefits
- ⚠ Use with caution

\* Order of medications represents a suggested hierarchy of usage; length of line reflects strength of recommendation

PROGRESSION OF DISEASE







## DYSLIPIDEMIA

## HYPERTENSION

**LIFESTYLE THERAPY** (Including Medically Assisted Weight Loss)

**LIPID PANEL: Assess ASCVD Risk**

**STATIN THERAPY**

If TG > 500 mg/dL, fibrates, Rx-grade omega-3 fatty acids, niacin

If statin-intolerant

Try alternate statin, lower statin dose or frequency, or add nonstatin LDL-C-lowering therapies

Repeat lipid panel; assess adequacy, tolerance of therapy

Intensify therapies to attain goals according to risk levels

RISK LEVELS	HIGH	VERY HIGH
	DM but no other major risk and/or age <40	DM + major ASCVD risk(s) (HTN, Fam Hx, low HDL-C, smoking) or ASCVD*
	<b>DESIRABLE LEVELS</b>	
LDL-C (mg/dL)	<100	<70
Non-HDL-C (mg/dL)	<130	<100
TG (mg/dL)	<150	<150
TC/HDL-C	<3.5	<3.0
Apo B (mg/dL)	<90	<80
LDL-P (nmol/L)	<1200	<1000

**IF NOT AT DESIRABLE LEVELS:**

Intensify lifestyle therapy (weight loss, physical activity, dietary changes) and glycemic control; consider additional therapy

**TO LOWER LDL-C:**  
**TO LOWER Non-HDL-C, TG:**  
**TO LOWER Apo B, LDL-P:**  
**TO LOWER LDL-C in FH:\*\***

Intensify statin, add ezetimibe, PCSK9i, colesovelam, or niacin  
 Intensify statin and/or add Rx-grade OM3 fatty acid, fibrate, and/or niacin  
 Intensify statin and/or add ezetimibe, PCSK9i, colesovelam, and/or niacin  
 Statin + PCSK9i

Assess adequacy & tolerance of therapy with focused laboratory evaluations and patient follow-up

\* EVEN MORE INTENSIVE THERAPY MIGHT BE WARRANTED \*\* FAMILIAL HYPERCHOLESTEROLEMIA

**GOAL: SYSTOLIC <130, DIASTOLIC <80 mm Hg**

ACEi or ARB

For initial blood pressure >150/100 mm Hg:  
**DUAL THERAPY**

ACEi or ARB	+	Calcium Channel Blocker ✓
		β-blocker ✓
		Thiazide ✓

If not at goal (2–3 months)

Add calcium channel blocker, β-blocker or thiazide diuretic

If not at goal (2–3 months)

Add next agent from the above group, repeat

If not at goal (2–3 months)

Additional choices (α-blockers, central agents, vasodilators, aldosterone antagonist)

Achievement of target blood pressure is critical

	MET	GLP-1 RA	SGLT-2i	DPP-4i	AGi	TZD (moderate dose)	SU GLN	COLSVL	BCR-QR	INSULIN	PRAML
HYPO	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Moderate/ Severe Mild	Neutral	Neutral	Moderate to Severe	Neutral
WEIGHT	Slight Loss	Loss	Loss	Neutral	Neutral	Gain	Gain	Neutral	Neutral	Gain	Loss
RENAL/ GU	Contra- indicated CKD Stage 3B,4,5	Exenatide Not Indicated CrCl < 30	Not Effective with eGFR < 45  Genital Mycotic Infections	Dose Adjustment Necessary (Except Linagliptin)	Neutral	Neutral	More Hypo Risk	Neutral	Neutral	More Hypo Risk	Neutral
GI Sx	Moderate	Moderate	Neutral	Neutral	Moderate	Neutral	Neutral	Mild	Moderate	Neutral	Moderate
CHF	Neutral	Neutral	Neutral	Neutral	Neutral	Moderate	Neutral	Neutral	Neutral	Neutral	Neutral
ASCVD	Benefit		Possible Benefit			Neutral	Neutral		?		
BONE	Neutral	Neutral	Neutral	Neutral	Neutral	Moderate Fracture Risk	Neutral	Neutral	Neutral	Neutral	Neutral

■ Few adverse events or possible benefits    
 ■ Use with caution    
 ■ Likelihood of adverse effects    
 ? Uncertain effect



# PRINCIPLES OF THE AAACE/ACE COMPREHENSIVE TYPE 2 DIABETES MANAGEMENT ALGORITHM



1. Lifestyle therapy, including medically supervised weight loss, is key to managing type 2 diabetes.
2. The A1C target must be individualized.
3. Glycemic control targets include fasting and postprandial glucoses.
4. The choice of therapies must be individualized on basis of patient characteristics, impact of net cost to patient, formulary restrictions, personal preferences, etc.
5. Minimizing risk of hypoglycemia is a priority.
6. Minimizing risk of weight gain is a priority.
7. Initial acquisition cost of medications is only a part of the total cost of care which includes monitoring requirements, risk of hypoglycemia, weight gain, safety, etc.
8. This algorithm stratifies choice of therapies based on initial A1C.
9. Combination therapy is usually required and should involve agents with complementary actions.
10. Comprehensive management includes lipid and blood pressure therapies and related comorbidities.
11. Therapy must be evaluated frequently until stable (e.g., every 3 months) and then less often.
12. The therapeutic regimen should be as simple as possible to optimize adherence.
13. This algorithm includes every FDA-approved class of medications for diabetes.