

## CONSENSUS STATEMENT BY THE AMERICAN ASSOCIATION OF CLINICAL ENDOCRINOLOGISTS AND AMERICAN COLLEGE OF ENDOCRINOLOGY ON THE COMPREHENSIVE TYPE 2 DIABETES MANAGEMENT ALGORITHM – 2020 EXECUTIVE SUMMARY

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*This document represents the official position of the American Association of Clinical Endocrinologists and American College of Endocrinology. Where there were no randomized controlled trials or specific U.S. FDA labeling for issues in clinical practice, the participating clinical experts utilized their judgment and experience. Every effort was made to achieve consensus among the committee members. Position statements are meant to provide guidance, but they are not to be considered prescriptive for any individual patient and cannot replace the judgment of a clinician.*

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AMERICAN ASSOCIATION OF CLINICAL ENDOCRINOLOGISTS  
AMERICAN COLLEGE OF ENDOCRINOLOGY

**AACE/ACE COMPREHENSIVE  
TYPE 2 DIABETES  
MANAGEMENT ALGORITHM**

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

1.	Lifestyle modification underlies all therapy (e.g., weight control, physical activity, sleep, etc.)
2.	Avoid hypoglycemia
3.	Avoid weight gain
4.	Individualize all glycemic targets (A1C, FPG, PPG)
5.	Optimal A1C is $\leq 6.5\%$ , or as close to normal as is safe and achievable
6.	Therapy choices are patient centric based on A1C at presentation and shared decision-making
7.	Choice of therapy reflects ASCVD, CHF, and renal status
8.	Comorbidities must be managed for comprehensive care
9.	Get to goal as soon as possible—adjust at $\leq 3$ months until at goal
10.	Choice of therapy includes ease of use and affordability
11.	CGM is highly recommended, as available, to assist patients in reaching goals safely



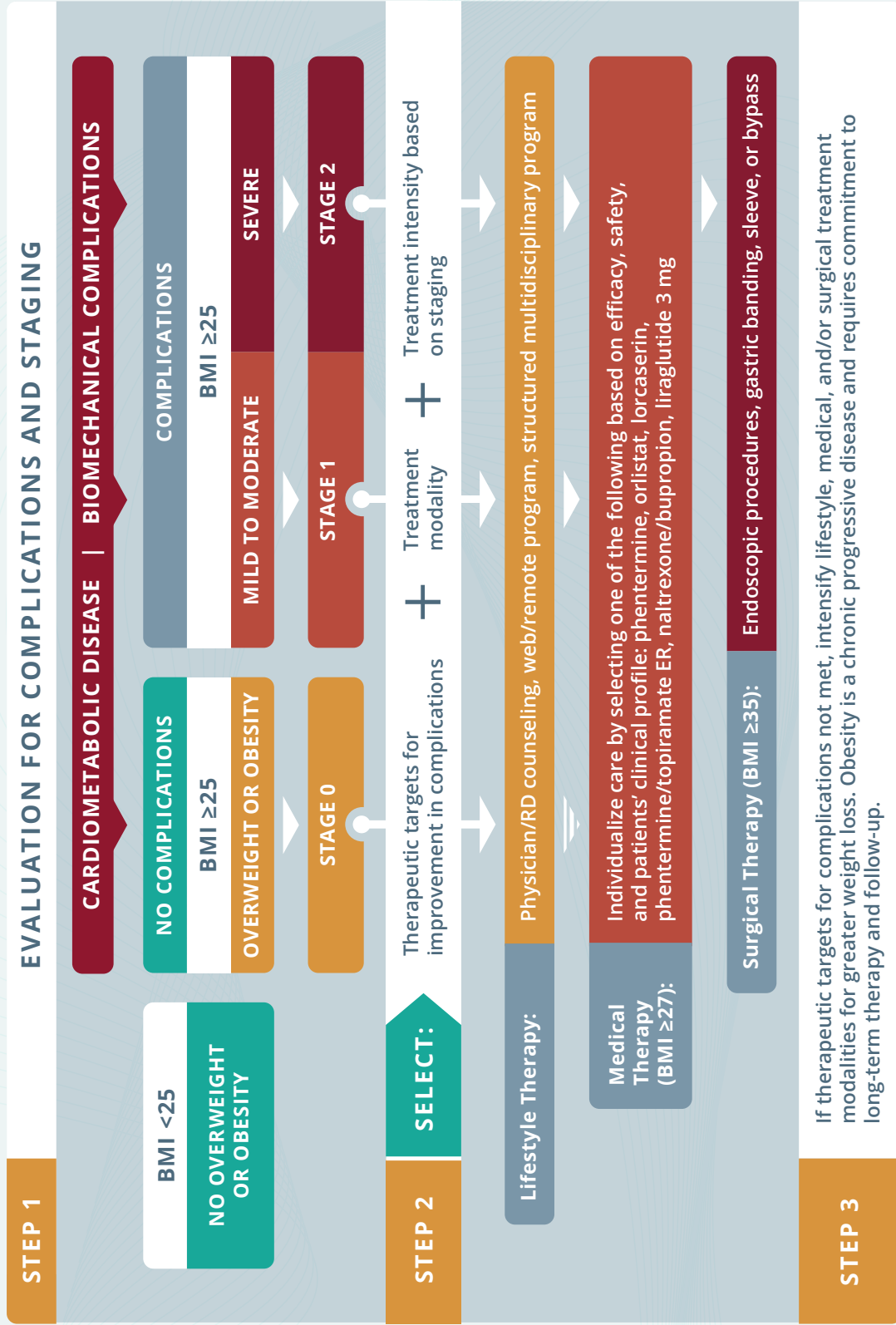
# LIFESTYLE THERAPY

## RISK STRATIFICATION FOR DIABETES COMPLICATIONS

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

<b>Nutrition</b>	<ul style="list-style-type: none"> <li>Maintain optimal weight</li> <li>Calorie restriction (manage increased weight)</li> <li>Plant-based diet; high polyunsaturated and monounsaturated fatty acids</li> </ul>	<ul style="list-style-type: none"> <li>Avoid <i>trans</i> fatty acids; limit saturated fatty acids</li> <li>Technological aids</li> </ul>	<ul style="list-style-type: none"> <li>Structured counseling</li> <li>Meal replacement</li> </ul>
<b>Physical Activity</b>	<ul style="list-style-type: none"> <li>150 min/week moderate exertion (e.g., walking, stair climbing)</li> <li>Strength training</li> <li>Increase as tolerated</li> </ul>	<ul style="list-style-type: none"> <li>Structured program</li> <li>Wearable technologies</li> </ul>	<ul style="list-style-type: none"> <li>Medical evaluation/clearance</li> <li>Medical supervision</li> </ul>
<b>Sleep</b>	<ul style="list-style-type: none"> <li>About 6-8 hours per night</li> <li>Basic sleep hygiene</li> </ul>	<ul style="list-style-type: none"> <li>Screen sleep disturbances</li> <li>Home sleep study</li> </ul>	<ul style="list-style-type: none"> <li>Referral to sleep study</li> </ul>
<b>Behavioral Support</b>	<ul style="list-style-type: none"> <li>Community engagement</li> <li>Alcohol moderation</li> </ul>	<ul style="list-style-type: none"> <li>Discuss mood with HCP</li> </ul>	<ul style="list-style-type: none"> <li>Formal behavioral therapy</li> </ul>
<b>Smoking Cessation</b>	<ul style="list-style-type: none"> <li>No tobacco products</li> </ul>	<ul style="list-style-type: none"> <li>Nicotine replacement therapy and medications as tolerated</li> </ul>	<ul style="list-style-type: none"> <li>Referral to structured program</li> </ul>

# COMPLICATIONS-CENTRIC MODEL FOR CARE OF THE PATIENT WITH OVERWEIGHT/OBESITY (ADIPOSIITY-BASED CHRONIC DISEASE)



# PREDIABETES ALGORITHM

IFG (100–125) | IGT (140–199) | METABOLIC SYNDROME (NCEP 2001)

## LIFESTYLE THERAPY (Including Medically Assisted Weight Loss)

TREAT ASCVD RISK FACTORS

WEIGHT LOSS THERAPIES

TREAT HYPERGLYCEMIA  
FPG >100 | 2-hour PG >140

ASCVD RISK FACTOR MODIFICATIONS ALGORITHM

DYSLIPIDEMIA ROUTE

HYPERTENSION ROUTE

NORMAL GLYCEMIA

Progression

OVERT DIABETES

PROCEED TO GLYCEMIC CONTROL ALGORITHM

### LEGEND

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

Intensify Weight Loss Therapies

1 PRE-DM CRITERION

Low-risk Medications

Metformin  
Acarbose

MULTIPLE PRE-DM CRITERIA

Consider with Caution

TZD  
GLP-1RA

If hyperglycemia persists

# ASCVD RISK FACTOR MODIFICATIONS ALGORITHM

## DYSLIPIDEMIA

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

#### LIPID PANEL: Assess ASCVD Risk

#### STATIN THERAPY

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

If statin-intolerant

Try alternate 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	EXTREME
	DESIRABLE LEVELS	DESIRABLE LEVELS	DESIRABLE LEVELS
LDL-C (mg/dL)	<100	<70	<55
Non-HDL-C (mg/dL)	<130	<100	<80
TG (mg/dL)	<150	<150	<150
Apo B (mg/dL)	<90	<80	<70

**RISK LEVELS:**  
**HIGH\*:** DM but no other major risk and/or age <40  
**VERY HIGH\*:** DM + major ASCVD risks (HTN, Fam Hx, low HDL-C, smoking, CKD3-4)  
**EXTREME\*:** DM plus established clinical CVD

#### 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:  
 Intensify statin and/or add ezetimibe, PCSK9i, colesvelam, or niacin  
 To lower Apo B, LDL-P:  
 Intensify statin and/or add ezetimibe, PCSK9i, colesvelam, and/or niacin  
 To lower LDL-C in FH:\*\*  
 Statin + PCSK9i

#### If TG 135-499:

Add icosapent ethyl 4 g/day if high ASCVD risk on maximally tolerated statins

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

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

## HYPERTENSION

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)

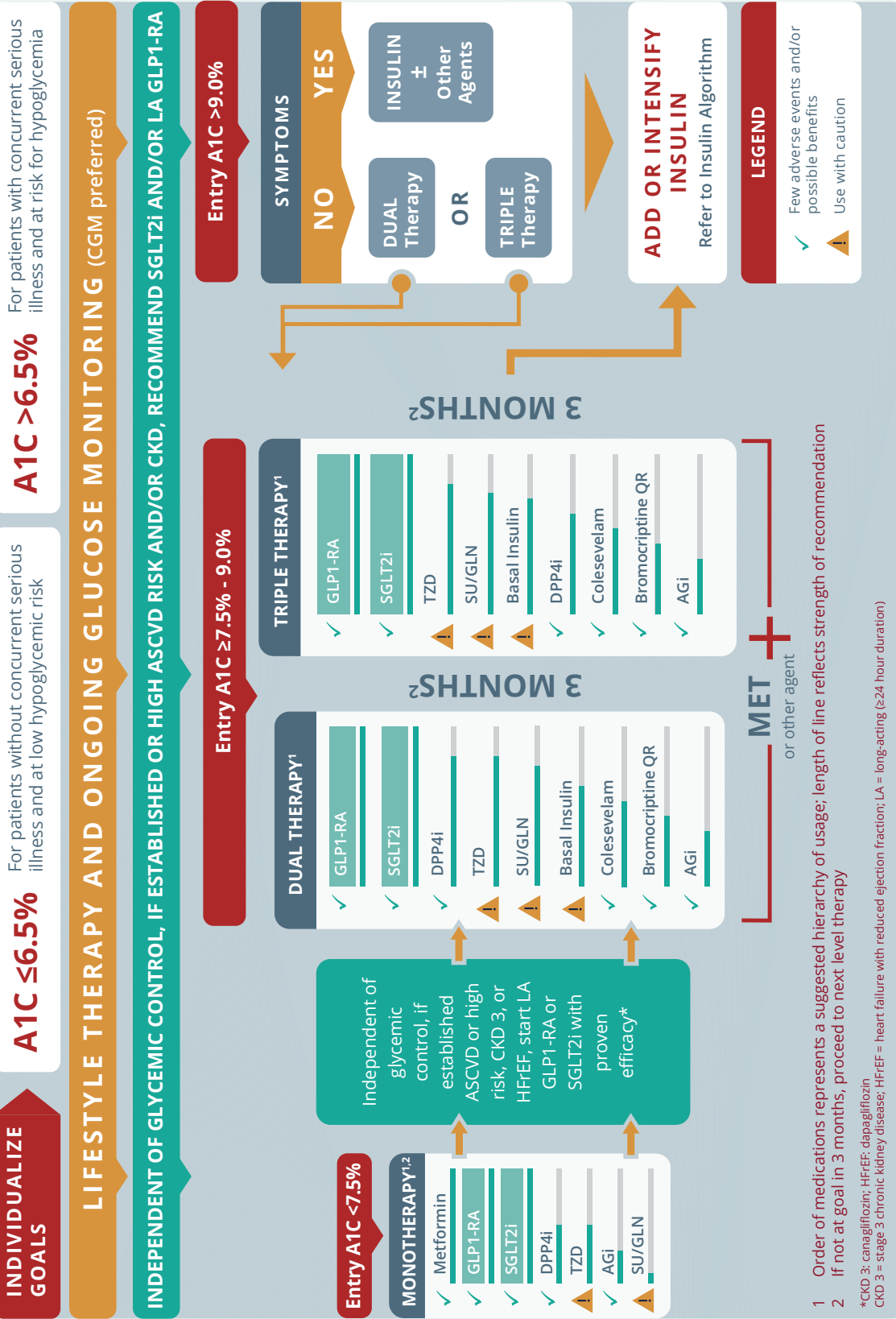
Add next agent from the above group, repeat

If not at goal (2-3 months)

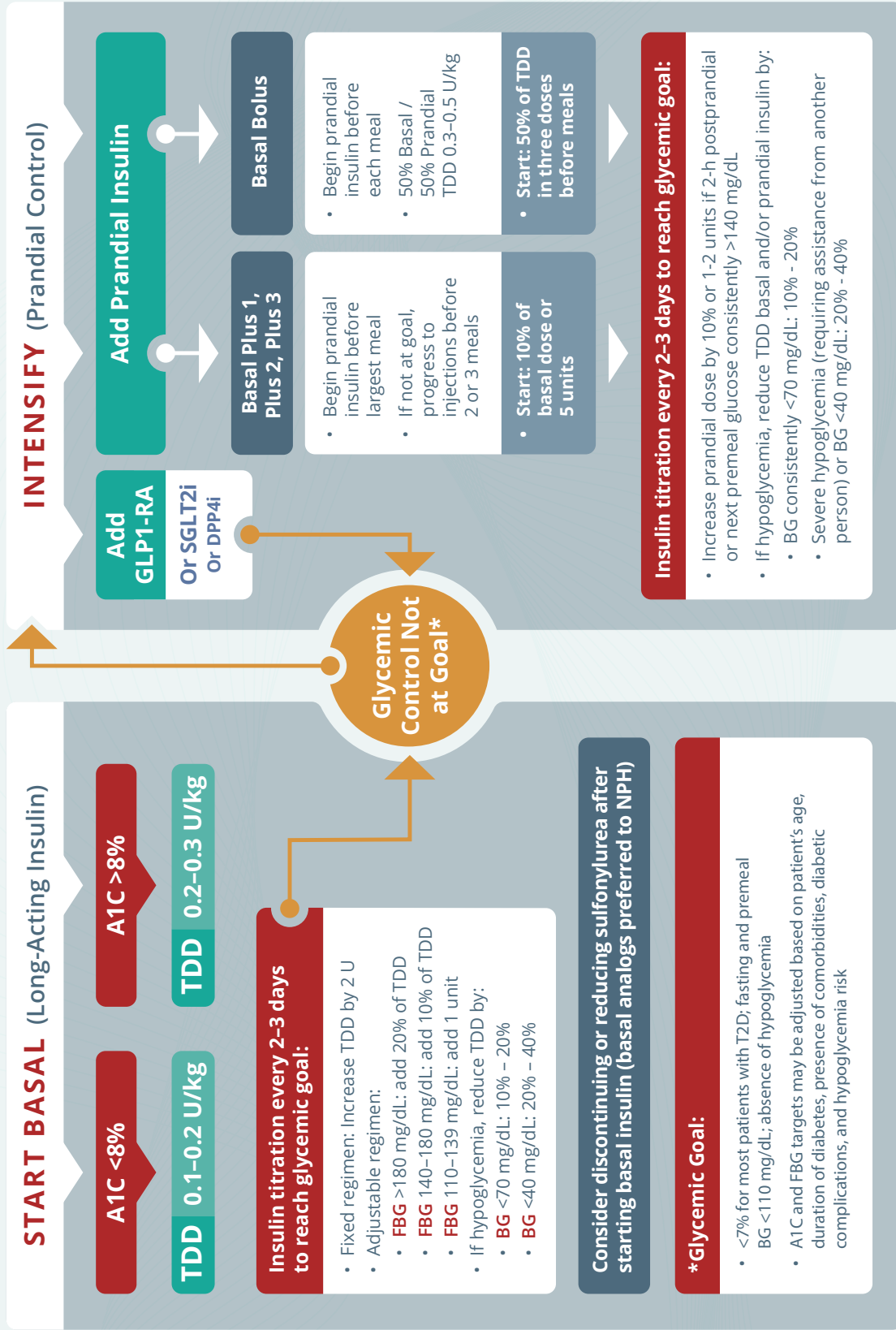
Additional choices (α-blockers, central agents, vasodilators, aldosterone antagonist)

**Achievement of target blood pressure is critical**

# GLYCEMIC CONTROL ALGORITHM



# ALGORITHM FOR ADDING/INTENSIFYING INSULIN



# PROFILES OF ANTIHYPERGLYCEMIC MEDICATIONS

	MET	GLP1-RA	SGLT2i	DPP4i	AGi	TZD (moderate dose)	SU GLN	COLSVL	BCR-QR	INSULIN	PRAML
<b>HYPO</b>	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Moderate/ Severe	Neutral	Neutral	Moderate to Severe	Neutral
<b>WEIGHT</b>	Slight Loss	Loss	Loss	Neutral	Neutral	Gain	Gain	Neutral	Neutral	Gain	Loss
<b>RENAL / GU</b>	Contra-indicated if eGFR <30 mL/min/1.73 m <sup>2</sup>	Exenatide Not Indicated CrCl <30	Not Indicated for eGFR <45 mL/min/1.73 m <sup>2</sup>	Dose Adjustment Necessary (Except Linagliptin) Effective in Reducing Albuminuria	Neutral	Neutral	More Hypo Risk	Neutral	Neutral	More Hypo Risk	Neutral
		Potential Benefit of LA GLP1-RA	See #1								
<b>GI Sx</b>	Moderate	Moderate	Neutral	Neutral	Moderate	Neutral	Neutral	Mild	Moderate	Neutral	Moderate
<b>CHF</b>	Neutral	Neutral	Prevent HF Hospitalization Manage HFrEF; See #2	See #4	Neutral	Moderate	Neutral	Neutral	Neutral	CHF Risk	Neutral
<b>CARDIAC ASCVD</b>		Potential Benefit of LA GLP1-RA	See #3			May Reduce Stroke Risk	Possible ASCVD Risk	Safe			
<b>BONE</b>	Neutral	Neutral	Neutral	Neutral	Neutral	Moderate Fracture Risk	Neutral	Neutral	Neutral	Neutral	Neutral
<b>KETOACIDOSIS</b>	Neutral	Neutral	DKA Can Occur in Various Stress Settings	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral

Few adverse events or possible benefits  
 Use with caution  
 Likelihood of adverse effects

1. Canagliflozin indicated for eGFR ≥30 mL/min/1.73 m<sup>2</sup> in patients with CKD 3 + albuminuria.
2. Dapagliflozin—potential primary prevention of HF hospitalization & demonstrated efficacy in HFrEF.
3. Empagliflozin—FDA approved to reduce CV mortality. Canagliflozin—FDA approved to reduce MACE events.
4. Possible increased hospitalizations for heart failure with alogliptin and saxagliptin.

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