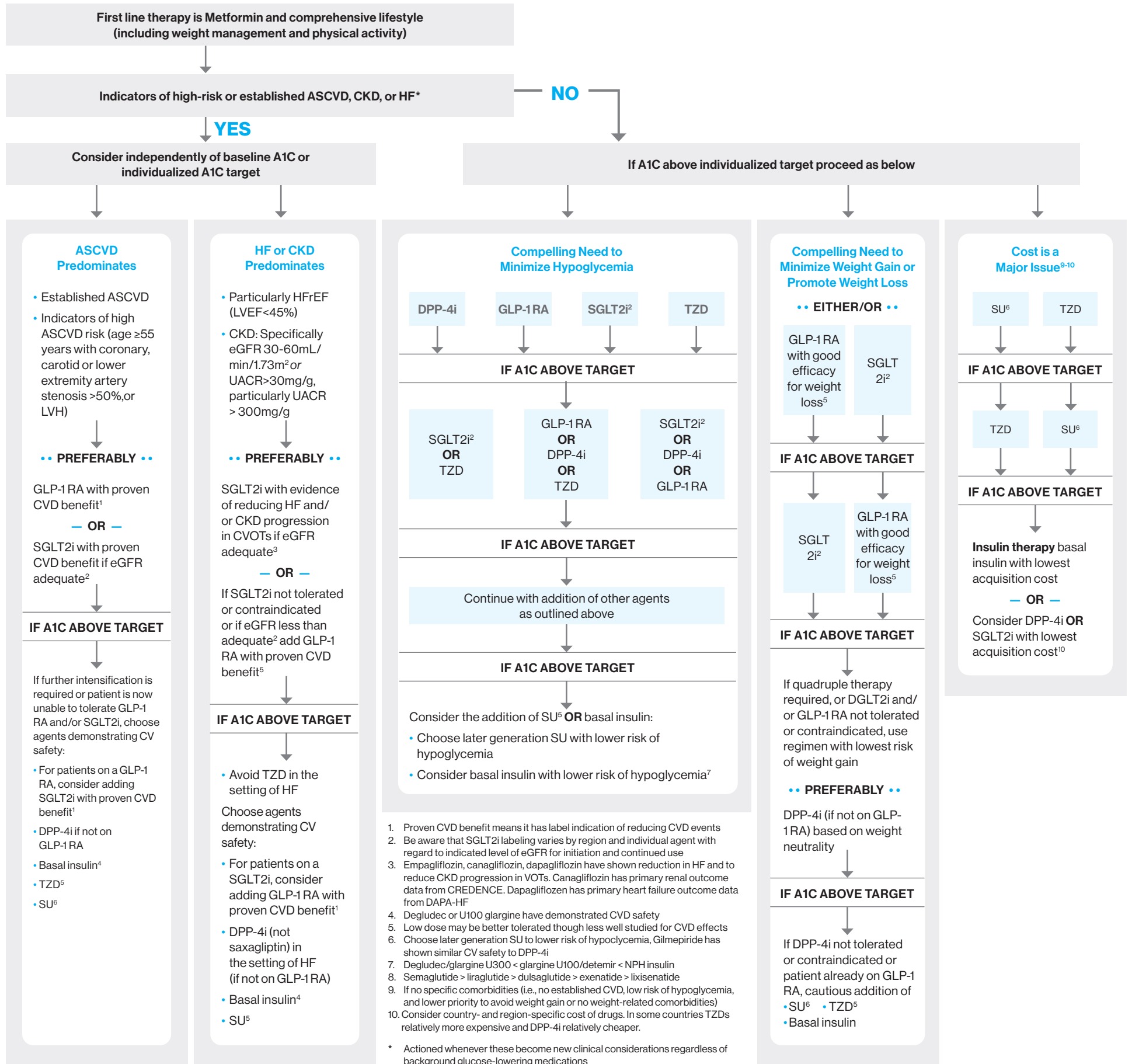


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FIG. 1: Diabetes Medication and Management Pathway



KEY

LVH = Left ventricular hypertrophy

HFrEF = Heart failure reduced ejection fraction

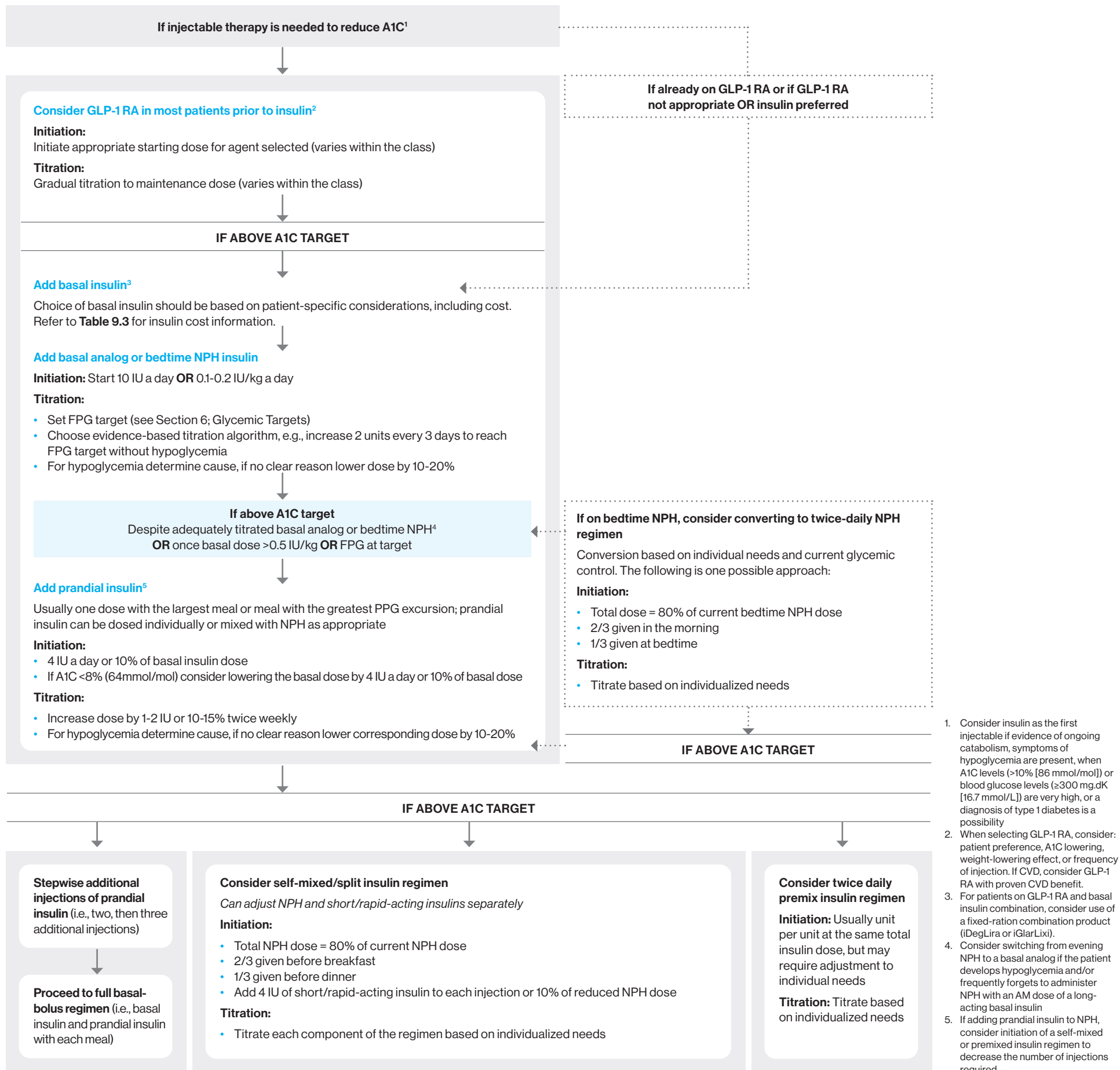
UACR = Urine albumin-to-creatinine ratio

LVEF = Left ventricular ejection fraction

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FIG. 2: Pathway to Reduce A1C via Insulin or Injectible Therapy



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Diabetes and Prediabetes Diagnosis

Prediabetes	Type 2 DM
Hba1c between 5.7% – 6.4%, or	A hemoglobin A1c (HbA1c) level of 6.5% or higher, or
Fasting blood glucose between 100 – 125 mg/dl, or	A fasting plasma glucose (FPG) level of 126 mg/dL or higher, or
An Oral Glucose Tolerance Test 2 hour blood glucose between 140 mg/dl – 199 mg/dl	A 2-hour plasma glucose level of 200 mg/dL or higher during a 75-g oral glucose tolerance test (OGTT), or
	A random plasma glucose of 200 mg/dL or higher in a patient with classic symptoms of hyperglycemia or hyperglycemic crisis

Table 2: Noninsulin Diabetic Agents: Median Monthly (30-day) Cost and Available Doses

Class	Compound(s)	Common Trade Names	Available Dosages (formulation)	Median AWP (min, max) †	Maximum approved daily dose*
Biguanides	Metformin	Glucophage Riomet	500 mg (IR)	\$84 (\$4, \$85)	2,000 mg
			850 mg (IR)	\$108 (\$6, \$109)	2,550 mg
			1,000 mg (IR)	\$87 (\$4, \$88)	2,000 mg
		Fortamet, Glucophage XR, Glumetza, Riomet ER	500 mg (ER)	\$89 (\$87, \$7,412)	2,000 mg
			750 mg (ER)	\$74 (\$65, \$74)	1,500 mg
			1,000 mg (ER)	\$242 (\$242, \$7,214)	2,000mg
Sulfonylureas (2nd generation)	Glimepiride	Amaryl	4 mg	\$74 (\$71, \$198)	8 mg
		Glucotrol	10 mg (IR)	\$75 (\$67, \$97)	40 mg (IR)
	Gliburide	Glucotrol XL	10 mg (XL)	\$48	20 mg (XL)
		Glynase PresTabs None in USA	6 mg (micronized) 5 mg	\$50 (\$48, \$71) \$93 (\$63, \$103)	12 mg (micronized) 20 mg
Thiazolidinediones	Pioglitazone	Actos	45 mg	\$348 (\$283, \$349)	45 mg
	Rosiglitazone	Avandia	4 mg	\$407	8 mg
α-Glucosidase inhibitors	Acarbose	Precose	100 mg	\$106 (\$104, \$106)	300 mg
	Miglitol	Glyset	100 mg	\$241	300 mg
Meglitinides (glinides)	Nateglinide	Starlix	120 mg	\$155	360 mg
	Repaglinide	Prandin	2 mg	\$878 (\$162, \$897)	16mg
DPP-4 inhibitors	Alogliptin	Nesina	25 mg	\$234	25 mg
	Saxagliptin	Onglyza	5 mg	\$505	5 mg
	Linagliptin	Trajenta	5 mg	\$523	5 mg
	Sitagliptin	Januvia	100 mg	\$541	100 mg
SGLT2 inhibitors	Ertugliflozin	Steglatro	15 mg	\$338	15 mg
	Dapagliflozin	Farxiga	10 mg	\$591	10 mg
	Empagliflozin	Jardiance	25 mg	\$591	25 mg
	Canagliflozin	Invokana	300 mg	\$593	300 mg
GLP-1 RAs	Exenatide (extended release)	Bydureon, Bydureon Bcise	2 mg powder for suspension or pen	\$840	2 mg**
		Byetta	10 µg pen	\$876	20 µg
	Dulaglutide	Trulicity	1.5/0.5 mL pen	\$911	1.5 mg**
	Semaglutide	Ozempic	1 mg pen	\$927	1 mg**
		Rybelsus	14 mg (tablet)	\$927	14 mg
	Liraglutide	Victoza, Saxenda	18 mg/3 mL pen	\$1,106	1.8 mg
	Lixisenatide	Adlyxin	300 µg/3 mL pen	\$744	20 µg
Dopamine-2 agonist	Bromocriptine	Parlodol, Cycloset	0.8 mg	\$906	4.8 mg
Amylin mimetic	Pramlintide	Symlin	120 µg pen	\$2,623	120 µg/injection†††

*AWP, average wholesale price; DPP-4, dipeptidyl peptidase 4; ER and XL, extended release; GLP-1 RA, glucagon-like peptide 1 receptor agonist; IR, immediate release; N/A, data not available; SGLT2, sodium-glucose cotransporter 2. †Calculated for 30-day supply (AWP[54] of doses required to provide maximum approved daily dose 330 days); median AWP listed alone when only one product and/or price. *Utilized to calculate median AWP (min, max); generic prices used, if available commercially. **Administered once weekly. †††AWP calculated based on 120 mg three times daily."

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Diabetic Management Checklist

Screening/ Management Measure	Target	Frequency	Next Step if uncontrolled/positive finding
HgbA1c test	<7.0%	Every 6 months if controlled Every 3 months if poorly controlled	<ul style="list-style-type: none"> Lifestyle modification Escalate dosing of anti-diabetic medications Referral to endocrinologist or pharmacist if HgbA1c >9% CM/BH referral as indicated
Blood Pressure control	BP <140/90 or <130/80 in select pts with CVD, CAD, or ASCVD risk > 15%*	Annually if normal	<ul style="list-style-type: none"> Lifestyle modification Home BP monitoring If no CKD, use ACE/ARB, diuretic, or CCB If CKD present: ACE/ARB If resistant hypertension or progressive kidney disease, consider referring to Nephrology or clinical pharmacy program
Lipid Management	LDL is <100 mg/dL. With CV disease, target is <70 mg/dL.	Annually	<ul style="list-style-type: none"> Lifestyle modification Statin therapy
Monitoring for Diabetic Kidney Disease (eGFR and UACR)	eGFR >100 UACR <30 mg/g C	Annually (Consider semiannually if EGFR <60 or UACR >30 mg/g of C)	<ul style="list-style-type: none"> ACE/ARB if eGFR <60 or UACR >30 Consider use of SGLT-2i or GLP-1 RA Intensify anti-diabetic medications to optimize glycemic control Dietary intake of ~0.8 g protein/kg weight per day Consider Nephrology referral
Retinopathy Screening	Absence of retinopathy or macular edema	If retinopathy or macular edema present, annual dilated eye exam or retinal photography. If not present, screen every 2 years.	<ul style="list-style-type: none"> Annual evaluation by ophthalmologist if retinopathy or macular edema present. Screening can be performed in PCP office with a retinal camera; optometry clinic or ophthalmology clinic.
Foot Exam	No ulcerations or fungal infections, 2+ Pedal pulses, Normal sensory response with monofilament	Annually	<ul style="list-style-type: none"> Referral to podiatrist for management of any abnormalities Refer for Ankle Branchial Index (ABI) if Peripheral Arterial Disease (PAD) suspected

Type 2 Diabetes and Heart Disease (Atherosclerotic Vascular Disease (ASCVD) and Heart Failure (HF))

- **Ideally, risk factors for ASCVD and Heart Failure should be assessed annually, using prognostic tools such as the ASCVD Risk Calculator (available online at tools.acc.org/ASCVD-Risk-Estimator-Plus). The 10 year risk of a first ASCVD event used to guide interventions.**
- Screening
 - Testing is indicated for typical/atypical chest pain, signs/symptoms of other vascular disease, or an abnormal ECG.
 - Exercise testing with/without echocardiography is the recommended initial test. Pharmacologic stress echo or nuclear imaging is indicated for those who are unable to exercise or have significant resting ECG abnormalities.
 - **Routine screening for ASCVD with CT calcium scores/CT angiography in asymptomatic high risk patients is not recommended.**
- Antiplatelet Therapy
 - **ASA (75-162 mg daily) may be used for primary prevention in diabetic patients aged 50-75 years with at least one additional ASCVD risk factors (family hx, dyslipidemia, hypertension, tobacco use, CKD/albuminuria) and not at increased risk of bleeding.**
 - ASA (75-162 mg/d) maybe used for secondary prevention, in diabetic patients with known ASCVD (prior MI/stroke).
 - Clopidogrel may be used in patients with known ASA allergy.
 - **In patients with known or multiple risk factors for ASCVD and/or CKD, an SGLT-2i or a GLP-1 RA should be part of the medication regimen.**
- Heart Failure
 - In patients with HF (with or without diabetes), a SGLT-2i may be used to reduce HF hospitalizations
 - Contraindicated:
 - DPP-4 Saxagliptin is associated with an increased risk hospitalization for HF and is contraindicated in HF patients.
 - Thiazolidinediones are also contraindicated in patients with heart failure

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Referrals

Potential indications for referral for specialty care include:

- Endocrinology
 - **For A1c > 9, despite 6 months of adherent therapy**
 - Recurrent hypoglycemia
 - Continuous subcutaneous insulin therapy
- Cardiology
 - For **treatment of concomitant cardiac disease (CAD, HF)**, and orthostatic hypotension.
 - Optimize treatment of lipid disorders
- Nephrology
 - To clarify the cause of CKD, manage the complications of CKD, and All Stage 4 CKD (eGFR <30)
 - KidneyIntelX™ medium or high risk score¹
 - Diagnostic blood test that predicts risk of progressive decline in kidney function in patients with type 2 diabetes and existing Diabetic Kidney Disease at stages 1-3 (eGFR 30-59 or UACR ≥ 30).

MSHS Disease Management Services include:

Certified Diabetic Education Disease Management Team (Wellness Coaches):

Certified Diabetes Educators (CDEs) practice at the top of their license. They can help manage patients with both a diagnosis of diabetes and associated comorbidities such as heart failure. CDEs are embedded in primary and specialty care.

Clinical Pharmacy:

- Pharmacists are a key part of the care team for chronic disease management including diabetes, heart failure, and COPD.
- They are credentialed providers that can prescribe and adjust medications through the Collaborative Drug Treatment Model.²

REFERRALS TO PHARMACISTS:

- Uncontrolled diabetes and associated co-morbid conditions
- Polypharmacy, Medication Reconciliation and Medication Adherence

Ambulatory Care Management and Home Health Optimization Program:

REFERRAL CRITERIA may include those with:

- Complex psychosocial challenges impeding with optimal diabetic care.
- Multiple no-shows, unexplained non-adherence to medications, testing or treatment
- Demonstrated difficulty managing symptoms and/or disease processes (including those newly diagnosed)

HOW TO REFER CARE MANAGEMENT AND/OR HOME HEALTH OPTIMIZATION PROGRAM:

- Use the **MSHP Care Management Referral in Epic (order #391414)**
- Email mshpcmreferral@mountsinai.org or call **212-241-7228**

Behavioral Health³

Patients should be screened annually for depression using the PHQ-2/PHQ-9 and referred to behavioral health services through their current care pathway depending on their clinic.

For help accessing any of the above resources, please call MSHP at **877-234-6667** or email mshp@mountsinai.org.

¹ KidneyIntelX is one screening option for early diagnosis and prevention for CKD. KidneyIntelX is based on technology developed by Mount Sinai faculty and licensed to RenalytixAI, Inc. Mount Sinai faculty members are co-founders and equity owners in the company the Icahn School of Medicine at Mount Sinai has equity ownership in RenalytixAI plc. NYS CLIA ID: 33D2156875.

² https://www.amcp.org/sites/default/files/2019-03/Practice%20Advisory%20on%20CDTM%202.2012_0.pdf

³ Information developed and provided by the Mount Sinai Department of Psychiatry.