Type 2 Diabetes Care Guide

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CALIFORNIA CORRECTIONAL HEALTH CARE SERVICES

Information contained in the Care Guide is not a substitute for a health care professional's clinical judgment. Evaluation and treatment should be tailored to the individual patient and the clinical circumstances. Furthermore, using this information will not guarantee a specific outcome for each patient. Refer to "Disclaimer Regarding Care Guides" for further clarification.

https://cchcs.ca.gov/clinical-resources/

Table of Contents

CCHCS Care Guide: Type 2 Diabetes

GOALS[1]

- **A1C[¶] <7%** if can be achieved without significant hypoglycemia.
- **A1C 6% - 7%** for patients with a life expectancy >10–15 years and no or mild microvascular complications
- **A1C 7%- 8%** may be appropriate for individuals with limited life expectancy or where the harms of treatment are greater than the benefits.

GLP-1*/SGLT-2** is indicated in ASCVD [Ŧ] or high risk - independent of A1C and other medical treatment

Blood pressure (BP): (See page 16)

- BP targets should be individualized through a shared decision-making process that addresses cardiovascular risk, potential adverse medication effects, and patient preferences
- Target BP of <130/80 mmHg while on treatment if it can be safely attained

Lipid management: Primary Prevention (See page 17)

- **Moderate-intensity** statin therapy if age 40–75 years without ASCVD
- **High intensity** statin therapy if age 40-75 years at higher risk, including those with multiple ASCVD risk factors, to reduce LDL by ≥ 50% of baseline and to target an LDL of <70mg/dL

ALERTS

- Review and investigate hypoglycemia events at every encounter
- Consider insulin as the first injectable if symptoms of hyperglycemia are present, when blood glucose ≥ 300 mg/dL, A1C > 10% or when a diagnosis of type 1 diabetes is a possibility (see algorithm 2, page 11).

* Glucagon-like peptide-1 receptor agonists
** Sodium-glucose co-transporter 2 inhibitors
[Ŧ] Atherosclerotic cardiovascular disease
[¶] Glycated hemoglobin

DIAGNOSTIC CRITERIA

Diabetes and pre-diabetes are diagnosed using A1C criteria, plasma glucose criteria, or oral glucose tolerance test (OGTT). OGTT is more commonly used for diagnosing gestational diabetes mellitus (GDM).

Test	Pre-Diabetes	Diabetes (DM)	Gestational Diabetes
A1C	5.7 – 6.4%	≥ 6.5%	-
Fasting Plasma Glucose*	100 – 125 mg/dl	≥ 126 mg/dl	≥ 92 mg/dl 1 hr ≥ 180 mg/dl 2 hr ≥ 153 mg/dl
Random Plasma Glucose[¶]	-	≥ 200 mg/dl	-

*In the absence of unequivocal hyperglycemia, results should be confirmed by repeat testing.
[¶] Diagnostic in a patient with classic symptoms of hyperglycemia or hyperglycemic crisis

INITIAL EVALUATION

History	• Complete clinical history including Cardiovascular Risk (CV) factors and 10-year CV risk calculation (See page 14) • End organ sequelae: retinopathy, nephropathy, neuropathy, ASCVD defined as peripheral vascular disease, coronary artery disease (CAD), cerebrovascular disease/accident (CVA) that results from atherosclerosis	• Finger stick blood sugar (FSBS) logs • Symptoms of hypoglycemia • Patient self-management capacity • Medications • Patient concerns/compliance with medications
Physical Exam	• Vitals: BP and Body Mass Index (BMI) kg/m^2 • Waist circumference in patients with BMI 25-35 kg/m^2 • Cardiovascular exam, peripheral pulses	• Thyroid palpation • Skin examination/acanthosis nigricans, insulin injection/lipodystrophy • Comprehensive foot exam – annually (See Page 20)
Diagnostics	• Baseline A1C • Lipid panel • Urine albumin to creatinine ratio (UACR)	• Serum creatinine (Cr) and estimated glomerular filtration rate (eGFR) • TSH; Liver function tests; Vitamin B12 if on Metformin for ≥ 1 year • Serum potassium levels in patients on ACE inhibitors, ARBs, or diuretics

TREATMENT OPTIONS

Lifestyle intervention consists of weight loss when indicated, a Dietary Approach to Stop Hypertension (DASH)-style medical nutrition therapy eating pattern and increased physical activity. (See page 12)

Medications: (See pages 23-26) New American Diabetes Association guidelines 2024 anchor on assessment of ASCVD risk [3]

- Use of insulin is deemphasized. If insulin is used, combination therapy with a GLP-1 is recommended for better weight, metabolic and glycemic effect.
- Use GLP-1 and/or SGLT-2 agents with known CV effect for patients with ASCVD conditions or indicators of high risk:
  - Age ≥55 years
  - Obesity
  - Hypertension
  - Smoking
  - Dyslipidemia
  - Albuminuria
  - Heart Failure
  - Chronic Kidney Disease
- For patients without the above risk factors and comorbidities, glycemic medication choice is targeted to minimize hypoglycemia and weight gain.

MONITORING

- PCP/Care Team visits as clinically appropriate
- A1C at least every 180 days in patients who are meeting glycemic goals and who have stable glycemic control
- A1C at least every 90 days and as needed in patients whose therapy has recently changed or who are not meeting glycemic goals

CLINICAL PRESENTATION OF DIABETES[4]

Type 2 diabetes (T2D) – T2D is the most common type of diabetes in adults (>90 percent) and is characterized by hyperglycemia due to relative insulin deficiency from progressive loss of insulin secretion from the beta cell with superimposed insulin resistance.

- The majority of patients are asymptomatic at presentation, with hyperglycemia noted on routine laboratory evaluation, prompting further testing. The classic symptoms of hyperglycemia (including polyuria, polydipsia, nocturia, blurred vision, and weight loss) are often noted only in retrospect after a blood glucose value has been shown to be elevated.
- Rarely adults with T2D can present with a hyperosmolar hyperglycemic state, characterized by marked hyperglycemia, severe dehydration, and obtundation, but without ketoacidosis. Diabetic ketoacidosis (DKA) as the presenting symptom of T2D is also uncommon in adults but may occur under certain circumstances (usually severe infection or other acute illness)

Type 1 diabetes (T1D) – T1D is characterized by autoimmune destruction of the pancreatic beta cells, leading to absolute insulin deficiency. T1D accounts for approximately 5 to 10 percent of diabetes in adults.

- DKA may be the initial presentation in approximately 25 percent of adults with newly diagnosed T1D. Adults with T1D typically have a longer estimated period prior to diagnosis and are likely to have more protracted symptoms of hyperglycemia (polyuria, polydipsia, fatigue) than children.

Latent autoimmune diabetes of adults (LADA) – In 2 -12 percent of adults, the clinical presentation is similar to that of T2D (older-age onset and not initially insulin dependent), with autoimmune-mediated insulin deficiency developing later in the course of disease.

- Patients with LADA are a heterogeneous group of patients with variable titers of antibodies, body mass index (BMI), and frequency of progression to insulin dependence. Patients with high titers of glutamic acid decarboxylase 65 (GAD65) antibodies usually have a lower BMI, less endogenous insulin secretion (as measured by stimulated serum C-peptide concentrations), and progress more quickly to insulin dependence. Thus, the presence and titers of anti-GAD65 antibodies (or islet autoantibodies) can help to identify patients thought to have T2D, who are likely to respond poorly to oral hypoglycemic drug therapy, require insulin, and to be at increased risk for developing ketoacidosis.

SCREENING AND PREVENTION FOR T2D [2]

Overview: Screening and early intervention for patients with T2D and prediabetes may improve long-term outcomes. Well-established treatments for T2D and hyperglycemia reduce the progression of microvascular disease, including retinopathy, nephropathy, and neuropathy. Early interventions to lower lipids with statins and lower blood pressure with angiotensin-converting enzyme inhibitors (ACEi) or angiotensin receptor blockers (ARB) and use of GLP-1 and SGLT-2 inhibitors can prevent/limit cardiovascular and chronic kidney disease.

PREVENTION OF T2D

There is often a long pre-symptomatic phase before the diagnosis of T2D. The duration of glycemic burden is a strong predictor of heightened cardiovascular risk. Interventions for prediabetes can prevent or delay the onset of diabetes. Lifestyle interventions aimed at weight loss and increased activity level, and treatment of CVD modifiable risk factors should be offered to adults at high risk of T2D.

Metformin for the prevention of T2D should be considered in adults at high risk of T2D, especially those age 25-59 years with BMI ≥ 35 kg/m^2, higher fasting plasma glucose (e.g. ≥110mg/dL), and higher A1C (e.g., ≥6.0%), and in individuals with prior GDM.[3]

CRITERIA FOR SCREENING FOR T2D in ASYMPTOMATIC ADULTS[4]

- Screen all patients with a BMI ≥ 25 kg/m^2 or ≥ 23 kg/m^2 in Asian Americans who have ≥ 1 of the following risk factors:
  - First-degree relative with diabetes
  - African American, Latino, Native American, Asian American, Pacific Islander.
  - History of cardiovascular disease
  - Hypertension (blood pressure ≥ 130/80 mmHg or on therapy for hypertension)
  - High density lipoprotein (HDL) cholesterol level < 35 mg/dL (0.90 mmol/L) and/or a triglyceride level > 250 mg/dL
  - History of polycystic ovary syndrome
  - Physical inactivity
  - Other clinical conditions associated with insulin resistance (e.g., severe obesity, acanthosis nigricans)
- Patients with prediabetes (A1C ≥ 5.7% [39 mmol/mol], Impaired Glucose Tolerance (IGT), or Impaired Fasting Glucose (IFG) should be tested yearly
- Patients with a history of GDM should have lifelong testing at least every 3 years
- For all other patients, screening should begin at age 35 years
- If results are normal, screening should be repeated at a minimum of 3-year intervals, with consideration of more frequent testing depending on initial results and risk status

EVALUATION OF T2D AT INITIAL AND FOLLOW-UP VISITS

[Adapted from 2024 ADA Comprehensive Medical Evaluation[5,6]]

Intervention	Frequency	Additional Notes
Diabetes History: • Characteristics at onset • Review of previous treatment response • Assess frequency/cause/severity of past hospitalizations, complications, and comorbidities	Initial visit	Assess patient characteristics: • Clinical characteristics, (age in years, A1C, BMI, Obstructive Sleep Apnea [OSA]) • Comorbidities (ASCVD, Chronic Kidney Disease [CKD], HF) • Psychosocial (motivation and history of depression)
Family history	Initial visit	• Family history of diabetes in a first-degree relative • Family history of autoimmune disorder
Interval History/Monitoring • Patients not meeting goals should be seen every 3 months	Every visit	• Assess comorbidities: obesity, OSA, NAFLD, established ASCVD/or high risk for ASCVD, HF and CKD. ○ Note that patients with T2D should be screened and risk stratified for clinically significant liver fibrosis (see NAFLD CG for details) • Consider measuring natriuretic peptide to screen for stage B heart failure (see "Heart Failure CG" for details) • Consider assessing fracture risk factors in older adults with diabetes as part of routine care (see Bone disease in diabetes mellitus - UpToDate for details) • Monitor blood pressure and lipids • Review hypoglycemia: awareness/frequency/causes/timing • Check tolerability and side effects to medications • Monitor glycemic status, finger stick glucose, A1C
Physical examination	Every visit	• Height, weight, and BMI • Blood pressure • Thyroid palpation • Skin examination (e.g., acanthosis nigricans, insulin injection or insertion sites, lipodystrophy) • Foot examination: visual inspection (e.g., skin integrity, callous formation, foot deformity or ulcer, toenails)
Registered Dietitian Referral	Initial Diagnosis	• Diabetic education at initial diagnosis and prn if poor control
Smoking cessation counseling	Every visit	• For smokers only
Blood pressure Monitoring	Every visit	• Target goals should be individualized • Target BP on treatment <130/80 mmHg if can be safely obtained
Dilated eye examination	Annually or every 1-2 years if no retinopathy on one or more exams and well controlled glycemia	• Begin at onset of T2D • 3 to 5 years after onset of T1D • Follow-up exam is generally repeated annually for patients with minimal to no retinopathy • More frequent if retinopathy or risk factors are present • Every 1-2 years if there is no evidence of retinopathy on one or more annual exams and glycemia is well controlled
Comprehensive foot examination	Annually	• Every visit if peripheral vascular disease or neuropathy
Dental examination	Annually	• Periodontal disease is more severe and may be more prevalent in patients with diabetes. They may also have more oral fungal infections, delayed treatment response and slower wound healing.

EVALUATION OF T2D AT INITIAL AND FOLLOW-UP VISITS, Cont'd [Adapted from 2024 ADA Comprehensive Medical Evaluation[5,6]]		
Intervention	**Frequency**	**Additional Notes**
Laboratory Studies		
Lipid profile	Initially, as clinically indicated	• In people <40 yrs. without dyslipidemia and not on cholesterol lowering therapy, testing is to be repeated every 5 years • Patients with ASCVD risk factors, monitor as clinically indicated, with goal of LDL < 70 mg/dL recommended • Consider goal of LDL < 55 mg/dL for patients with ASCVD, see page 20 for details
A1C	Every 3 to 6 mos.	• Goal ≤ 7% (may be lower or higher in selected patients) • Every 6 months for patients reaching stable glycemic goals • Every 3 months for patients not reaching stable glycemic goals
Urinary albumin-to-creatinine ratio	Annually	• Begin 3 to 5 years after onset of T1D • At diagnosis in patients with T2D, more frequent as indicated
B12 level	Annually	• Only in patients on Metformin
Serum Creatinine and eGFR	Annually	• All patients with albuminuria (See page 9 for eGFR Estimation)
Potassium	Annually	• If on ACE inhibitors/Angiotensin II receptor blockers/diuretics

T2D Treatment[7] (See algorithms pages 10 – 12)

Overview: Patients with T2D are 2- 4 times more likely to develop CV diseases due to increased risk factors, such as hypertension, obesity, and hyperlipidemia. There was a notable change in the 2023 Standards of Medical Care in Diabetes recommendations on pharmacological therapy for T2D. The American Diabetes Association (ADA) now recommends a patient-centered approach following T2D diagnosis.

- **Metformin** has been the drug of choice for initial treatment of T2D and remains first line therapy for most patients.
- After initiation of metformin, the recommendations diverge based on whether the patient has ASCVD conditions or is at high CVD risk because of age ≥55 years, obesity, hypertension, smoking, dyslipidemia, or albuminuria.
- **GLP-1 RAs and SGLT-2 inhibitors** For those with established ASCVD or indicators of high risk, HF and CKD: ADA recommends use of GLP-1 and SGLT-2 inhibitors, which have been shown to minimize ASCVD complications, delay progression of CKD and reduce hospitalization for heart failure. These medications should be initiated independent of A1C and metformin therapy as they offer cardiovascular benefit and lower all-cause mortality for these patients.
    - GLP-1 receptor agonists affect glucose control through several mechanisms including enhancement of glucose-dependent insulin secretion, slowed gastric emptying, and reduction of postprandial glucagon and food intake. These medications typically do not cause hypoglycemia. Some of these medications cannot be used for patients with reduced eGFR.
    - SGLT-2 inhibitors promote the renal excretion of glucose and modestly lower elevated blood glucose levels in patients with T2D. In patients with cardiorenal comorbidities, many SGLT-2 inhibitors demonstrate cardiorenal outcome benefit. These medications typically do not cause hypoglycemia on their own. SGLT-2 inhibitors have established efficacy and safety in patients with eGFR ≥ 20 mL/min/1.73 m^2, provide persistent nephroprotection and can be continued until renal replacement therapy with dialysis is initiated[8].
- For patients without ASCVD condition or risk, the choice of a second agent, after metformin, is based on the efficacy to achieve and maintain glycemic goals, and avoidance of adverse effects, particularly hypoglycemia and weight gain, as well as cost and patient preference.

2024 ADA TREATMENT GUIDANCE FOR T2D[6]

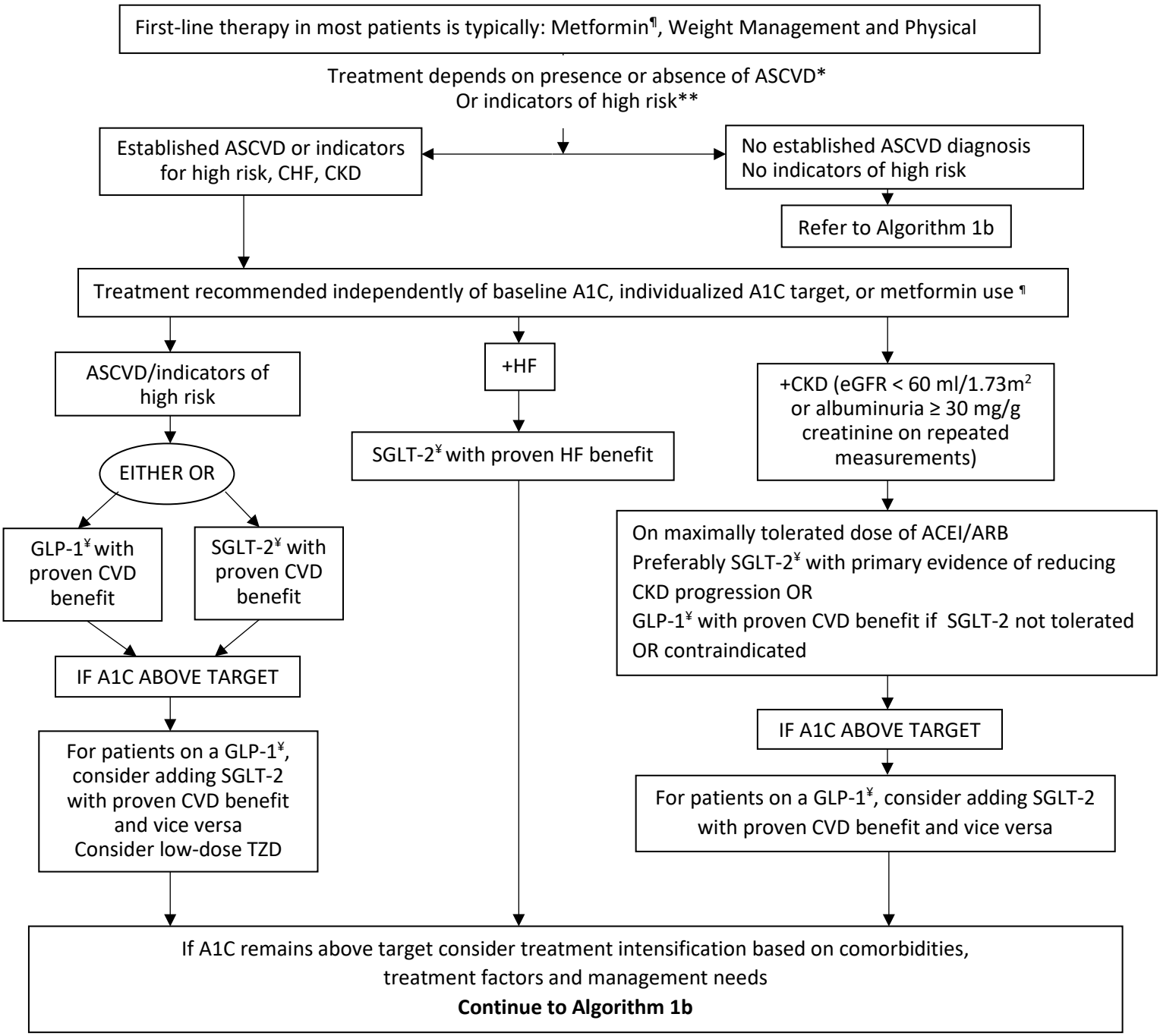
- **First line Therapy:** Medication choice depends on comorbidities and patient centered treatment factors, including cost and access, and generally includes metformin unless contraindicated, and comprehensive lifestyle modification. See Algorithm 1a and 1b (Pages 9 & 10).
- **Choice of subsequent glucose-lowering agents** should be based on whether or not the patient has established ASCVD, HF, CKD, ASCVD risk factors.
  - **T2D patients with established ASCVD** or indicators of high ASCVD risk, such as ≥55 years of age with two or more additional risk factors including:
    - Obesity
    - Hypertension
    - Smoking
    - Dyslipidemia
    - Albuminuria
    - HF
    - CKD

    These patients should be treated with SGLT-2 inhibitor or GLP-1 with demonstrated CVD benefit. SGLT-2 inhibitor is recommended for patients with HF
  - **T2D patients without established ASCVD** or indicators of high ASCVD risk, the choice of a second agent is based on efficacy to achieve and maintain glycemic goals and avoidance of adverse effects, particularly hypoglycemia and weight gain, as well as cost and patient preferences.
  - **Injectable Therapy (See Algorithm 2, Page 11)**: A GLP-1 is the preferred first line injectable over insulin due to weight gain in most patients who start insulin therapy which leads to even more insulin resistance. Thus, insulin would be the third line antihyperglycemic agent after metformin and GLP-1.
    - If insulin is used, combination therapy with a GLP-1 is recommended for greater efficacy and durability of treatment effect.
    - Indications **for Insulin as the first line Injectable Therapy**:
      - Symptoms of hyperglycemia and catabolism (polyuria, polydipsia, and weight loss) are present
      - A1C is > 10%, blood glucose ≥ 300 mg/dL, or
      - When a diagnosis of type 1 diabetes is a possibility

    See Algorithm 2, page 11. As glucose toxicity resolves, it is often possible to change to noninsulin agents or reduce the dose of insulin while adding other agents, such as GLP-1.

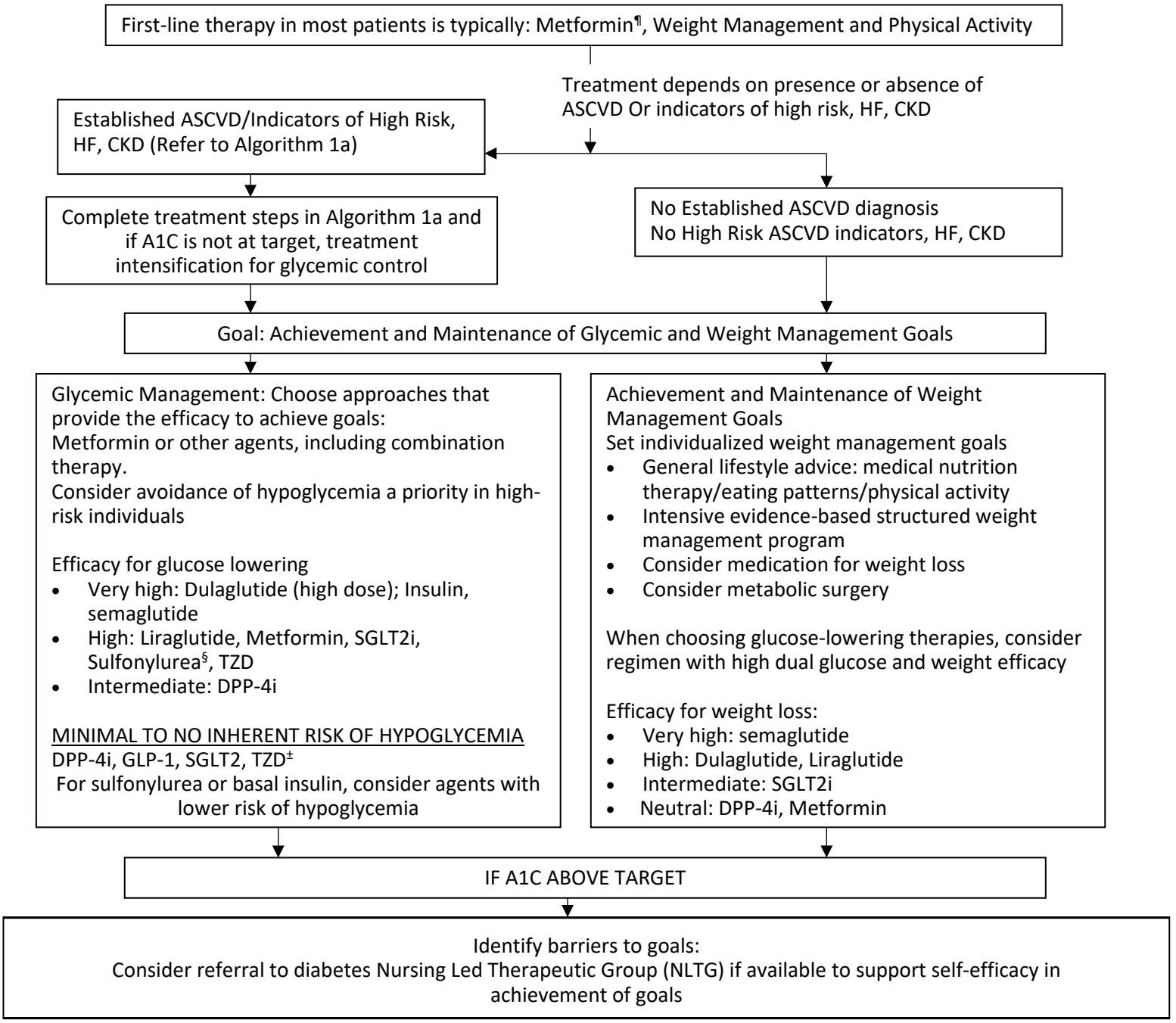
    - **Avoid overbasalization when using insulin**:
      - This is the clinical situation in which basal insulin doses are increased even further after fasting plasma glucose targets have been achieved to attain glycemic goals. This practice often results in hypoglycemia, usually overnight.
      - Titration of basal insulin when A1C is close to 7% has minimal effect on postprandial hyperglycemia or attainment of A1C goal.
      - Basal insulin is not designed to address postprandial hyperglycemia; its role is mainly to suppress hepatic glucose production, address insulin resistance, and correct fasting hyperglycemia.
    - **Overbasalization** is often suggested when:
      - A basal insulin dose > 0.5 units/kg/day
      - Post meal blood glucose levels >180 mg/dL
      - A1C not at goal despite attainment of the fasting blood glucose target, or
      - A bedtime-to-morning glucose differential ≥50 mg/dL
      - Hypoglycemia (aware or unaware)

Algorithm 1a: T2D Treatment for Patients with High Cardiovascular (In addition to comprehensive CV risk management)



¶ Metformin is first line treatment for T2D (unless not tolerated or contraindicated if eGFR <30, not recommended if eGFR 31-44)
* Atherosclerotic cardiovascular disease; CKD, chronic kidney disease; CVD, cardiovascular disease; HF (Heart Failure); eGFR, estimated glomerular filtration rate.
**Indicators of high risk: while definitions vary, most include ≥55 years of age with two or more additional risk factors, such as obesity, hypertension, smoking, dyslipidemia, or albuminuria.
Medication: GLP-1 medications with proven benefit in CVD: Dulaglutide, Liraglutide, Semaglutide SQ
SGLT-2 with proven benefit in CVD: Empagliflozin, Canagliflozin
SGLT-2 with proven benefit in HF: Empagliflozin, Canagliflozin, Dapagliflozin, Ertugliflozin
SGLT-2 with primary evidence of reducing CKD progression: Canagliflozin, Empagliflozin, Dapagliflozin
Symbols:
¥ Actioned whenever these become new clinical considerations regardless of background of glucose lowering medications.

Algorithm 1b. T2D Treatment for Patients with no Established ASCVD* and no Indicators of High ASCVD Risk**



*Established ASCVD: coronary heart disease, cerebrovascular disease, or PAD.
**Indicators of high ASCVD risk age ≥55 years of age with two or more additional risk factors including obesity, hypertension, smoking, dyslipidemia, or albuminuria.
Medications: DPP-4i (Dipeptidyl Peptidase-4 (DPP-4) Inhibitors), GLP-1 RA (Glucagon-like Peptide-1 Receptor Agonists); SGLT-2i (Sodium-glucose co-transporter 2 (SGLT2) inhibitor); SU (Sulfonylureas); TZDs (Thiazolidinediones).
Symbols:
¶ Metformin is first line treatment for T2D (unless not tolerated or contraindicated if eGFR <30, not recommended if eGFR 31-44).
§ When using sulfonylureas, choose second generation (glyburide, glipizide, and glimepiride) for their relatively lower risk of hypoglycemia.
± No risk of hypoglycemia.

Algorithm 2. Injectable Therapy for Treatment Intensification if A1C is not at Target

If injectable therapy is needed to reduce A1C[1]

Consider GLP-1 RA in most patients prior to insulin[2]
Initiation: Initiate appropriate starting dose for agent selected (varies within class)
Titration: Titrate to maintenance dose (varies within class)

If already on GLP-1 RA or if GLP-1 RA not appropriate OR insulin preferred

If above A1C target

Add basal insulin

Add basal analog or bedtime NPH insulin
Initiation: Start 10 units per day **OR** 0.1-0.2 units/kg per day
Titration:
- Set FPG target (see page 13: Glycemic goals)
- Choose evidence-based titration algorithm, e.g., increase 2 units every 3-7 days to reach FPG target without hypoglycemia
- For hypoglycemia, determine cause. If no clear reason, lower dose by 10-20%

If on bedtime NPH, consider converting to twice-daily NPH regimen
Conversion based on individual needs and current glycemic control. The following is one possible approach:
Initiation:
- Total dose = 80% of current bedtime NPH dose
- 2/3 given in the morning
- 1/3 given at bedtime

Titration:
- Titrate based on individualized needs

Assess adequacy of basal insulin dose
Consider clinical signals to evaluate for Overbasalization and need to consider adjunctive therapies (e.g., basal dose more than ~0.5 units/kg/day, elevated bedtime-to-morning and/or postprandial-to-preprandial differential, hypoglycemia [aware or unaware], high variability)

If above A1C target and not already on GLP-1RA, consider this class, or in combination with insulin.

If A1C remains above target:

If above A1C target

Add prandial insulin
Usually, one dose with the largest meal or meal with greatest PPG excursion; prandial insulin can be dosed individually or mixed with NPH as appropriate

Initiation:
- 4 units per day or 10% of basal insulin dose
- If A1C < 8% (64 mmol/mol) consider lowering the basal dose by 4 units per day or 10% of basal dose

Titration:
- Increase dose by 1-2 units or 10-15% weekly if clinically indicated
- For hypoglycemia, determine cause if no clear reason lower corresponding dose by 10-20%

Stepwise additional injections of prandial insulin (i.e., two, then three additional injections

If above A1C target

Consider twice daily premixed insulin regimen
Initiation:
- Usually, unit per unit at the same total insulin dose, but may require adjustment to individual needs

Titration:
- Titrate based on individualized needs

Proceed to full basal-bolus regimen (i.e., basal insulin and prandial insulin with each meal)

Consider self-mixed /split insulin regimen
Can adjust NPH and short/rapid-acting insulins separately
Initiation:
- Total NPH dose = 80% of current NPH dose
- 2/3 given before breakfast
- 1/3 given before dinner
- Add 4 units of short/rapid-acting insulin to each injection or 10% of reduced NPH dose

Titration:
- Titrate each component of the regimen based on individualized needs

1. Consider insulin as the first injectable if evidence of ongoing catabolism, symptoms of hyperglycemia are present, when A1C levels (>10% [86 mmol/mol]) or blood glucose levels (≥300 mg/dL [16.7 mmol/L]) are very high, or a diagnosis of type 1 diabetes is a possibility.
2. When selecting GLP-1 RA, consider: patient preference, A1C lowering, weight-lowering effect, or frequency of injection. If CVD, consider GLP-1 RA with proven CVD benefit. Oral or injectable GLP-1 RA are appropriate.

Adapted from: Diabetes Care Volume 47, Supplement 1, January 2024. S158. Pharmacologic Approaches to Glycemic Treatment.

T2D THERAPEUTIC LIFESTYLE CHANGES[1]

Patient Self-Management

- All patients with DM should be encouraged to participate in DM NLTG if available to assist with implementing and sustaining skills and behaviors needed for ongoing self-management. For patients with poorly controlled diabetes, encourage them to attend Nursing Led Therapeutic Group classes if available, or repeating such classes if one year has passed since patient's last participation.

Nutrition

- Consider Dietitian Referral to provide patients with practical tools for day-to-day meal choice selection and better food choices at canteen. Patients with poorly controlled DM, defined as A1C > 9.0, should be considered for referral to the Registered Dietitian (RD), including those who became poorly controlled after previously being controlled. Patients with T2D, who are overweight/obese should also be considered for referral to the RD.
- Provide Diabetic Health Education to all patients with T2D.

Weight loss

- If BMI ≥ 25 in patients with pre-diabetes or DM, establish a realistic weight loss goal at the time of diagnosis
- Weight loss of 2 - 8 kg may provide clinical benefits to those with T2D, especially early in the disease process

Exercise

- Ensure patients on insulin or insulin secretagogues (sulfonylureas) understand the possibility of hypoglycemia with increased physical activity
- The ADA recommends: at least 150 minutes of moderate/vigorous intensity exercise, spread out over ≥ 3 days/week. with no more than 2 consecutive days without activity. If younger and more physically fit: at least 75 minutes/week of vigorous intensity or interval training may be sufficient.

Psychosocial/Mental Health

- Ensure depression or other mental health issues are addressed, especially if the patient is non-adherent
- Involve and engage the patient, promote self-management skills, explore fears, and consider case coordination

Smoking Cessation: Tobacco and e-Cigarettes

- Advise not to use cigarettes and other tobacco products including e-cigarettes
- Patients who smoke should be offered smoking cessation counseling and treatment

T2D RACIAL and ETHNIC DISPARITIES[1]

- Certain racial and ethnic subgroups, such as African American and Hispanics with T2D have worse glycemic control and higher rates of diabetes complications and mortality compared with non-Hispanic whites.
- Clinical practice guidelines recommend treatment intensification and the preferential use of newer classes of diabetes medications in patients with or at high risk for cardiovascular and renal complications.
- Studies show that, independent of socioeconomic status and clinical factors (glycemic control and intensity of diabetes therapy), certain race and ethnicity, such as African American and American Indian or Alaskan Native individuals, have lower initiation of newer diabetes medications (SGLT–2 and GLP-1).
- Racial and ethnic disparities in the initiation of newer diabetes medications have important clinical consequences. These groups may especially benefit from the use of newer diabetes medications given their cardiorenal benefits.

CLINICAL INERTIA IN T2D

Treatment Intensification/Clinical Inertia in T2D: Because T2D is a progressive disease involving a decline in β-cell function and increase in insulin resistance, most patients ultimately require intensification of treatment to maintain adequate glycemic control. Patients whose glycemia is not well controlled, according to guideline targets, may be at increased risk of the long-term micro- and macrovascular complications of diabetes.

- Many patients with poor glycemic control despite treatment do not receive timely and appropriate therapy intensification
- Clinical inertia is failure of physicians to initiate or intensify therapy in a timely manner, despite recognition of the problem which leads to poor control of the risks for secondary complications from T2D
- Patients not meeting treatment goals should be reevaluated at regular/frequent intervals to intensify treatment, reinforce lifestyle changes, and monitor for complications
- Consider **endocrinology referral** in the following situations (based on InterQual Specialty Referral for Diabetes Criteria and recommendations from CCHCS' contracted endocrinologists):
    - Poorly controlled T2D (A1C ≥ 9 repeated ≥ 12 weeks apart and on 2 or more antihyperglycemic medications)
    - Discordant blood glucose measurements and A1C values or labile glucose measurements
    - Hypoglycemia unawareness or ≥ 2 episodes of documented hypoglycemia or ≥ 1 episode of severe hypoglycemia when patient lost consciousness (note that provider can still ask endocrinology consult if patient does not have 2 or more hypoglycemia episodes and would like input from endocrinologist)
    - Short term worsening of glycemia control and progressively increased insulin requirements or on sliding scale insulin, which should generally be avoided in outpatient setting
    - History of acute hospitalization for reasons related to DM management, such as recurrent diabetic ketoacidosis
    - Use of an insulin pump and/or continuous glucose monitoring prior to CDCR arrival
    - Other situations providers need assessment/opinion from endocrinologist in managing patients' diabetes

T2D MONITORING[8]

Glycemic Goals (Nonpregnant adults with T2D)[1]

- A1C Targets: Individualized glycemic goals should be based on duration of diabetes, age, life expectancy, comorbid conditions, known CVD or advanced microvascular complications, hypoglycemia unawareness, and patient considerations.
- An A1C goal of <7% without significant hypoglycemia is appropriate but can be <6.5% or < 8% based on patient factors.
- Older adults, who are otherwise healthy with few comorbidities and intact cognitive function and functional status should have treatment goals like those for younger adults with diabetes (A1C < 7.0–7.5 %).
- Glycemic goals for older adults might reasonably be relaxed as part of individualized care, but hyperglycemia leading to symptoms or risk of acute hyperglycemia complications should be avoided.
- Patients with multiple comorbidities, cognitive impairment, or functional dependence should have less stringent glycemic goals (A1C < 8.0%).
- Episodes of hypoglycemia should be ascertained and addressed at regular visits.
- Pre-prandial capillary plasma glucose or FSBG goal is 80–130 mg/dL.
- Peak postprandial capillary plasma glucose or FSBG goal is <180 mg/dL.

Finger Stick Blood Glucose (FSBG)

- If ordered, check and document results at each visit – In Cerner under "Results Review/Vitals"
- Act on results and assess need for continued FSBG while keeping in mind that FSBG is burdensome to patients and staff

T2D Monitoring, cont'd

- May not be necessary for patients with T2D who are being managed with diet or only on oral medications that are not associated with hypoglycemia
- Oral medication and basal insulin regimens: Once insulin dose stabilizes, may discontinue or monitor FSBG much less frequently, especially if A1C is at goal
- Note: A fasting or pre-meal FSBG test is of little value if patient has eaten, defer test
- Consider a Keep-on-Person (KOP) glucometer if fasting or pre-meal tests are needed but difficult to obtain

Blood Glucose Monitoring (BGM)

- Patients on insulin using a KOP glucometer should be encouraged to check blood glucose levels as appropriate based on insulin regimen, e.g., fasting, prior to meals and snacks, at bedtime, prior to exercise.
- If patient has unstable blood sugars and requires frequent FSBG tests, ensure they are trained on glucometer use prior to release.
- Frequent BGM with a glucometer can be used in lieu of continuous glucose monitoring as occasionally recommended by Endocrinologists. Patient self-monitoring is encouraged when not contraindicated.

CVD RISK FACTOR REDUCTION IN PATIENTS WITH T2D[5]

Overview: Diabetes is a complex, chronic illness requiring multifactorial risk-reduction strategies beyond glycemic control.

- ASCVD is the leading cause of morbidity and mortality for individuals with diabetes.
- Common conditions coexisting with T2D (e.g., hypertension and dyslipidemia) are clear risk factors for ASCVD, and diabetes itself confers independent risk.
- A comprehensive concurrent evidence-based approach to care will provide reduction in risks of microvascular, kidney, neurologic, and cardiovascular complications. Management of glycemia, blood pressure, and lipids and the incorporation of specific therapies with cardiovascular and kidney outcomes benefit, as individually appropriate, are considered fundamental elements of global risk reduction in diabetes
- For prevention and management of ASCVD conditions/complications, cardiovascular risk factors should be systematically assessed at least annually in all patients with diabetes. These risk factors include duration of diabetes, overweight, hypertension, dyslipidemia, smoking, a family history of premature coronary disease, chronic kidney disease, and the presence of albuminuria
- 10-year risk of ASCVD event should be assessed using the EMB calc in EHRS to risk stratify ASCVD risk and help guide therapy
- The following pages will review BP, aspirin use, and lipid management in patients with T2D

Hypertension Management in Patients with T2D

2024 ADA: Recommended blood pressure (BP) goals

See Algorithm 3 for Recommendations

TARGET BLOOD PRESSURE GOALS
Target goals should be individualized through a shared decision-making process that addresses cardiovascular risk, potential adverse effects of antihypertensive medications, and patient preferences.
People with diabetes and hypertension qualify for antihypertensive drug therapy when the BP is persistently elevated ≥ 130/80 mmHg. The on-treatment target BP goal is < 130/80 mmHg if it can be safely attained.

HYPERTENSION TREATMENT RECOMMENDATIONS

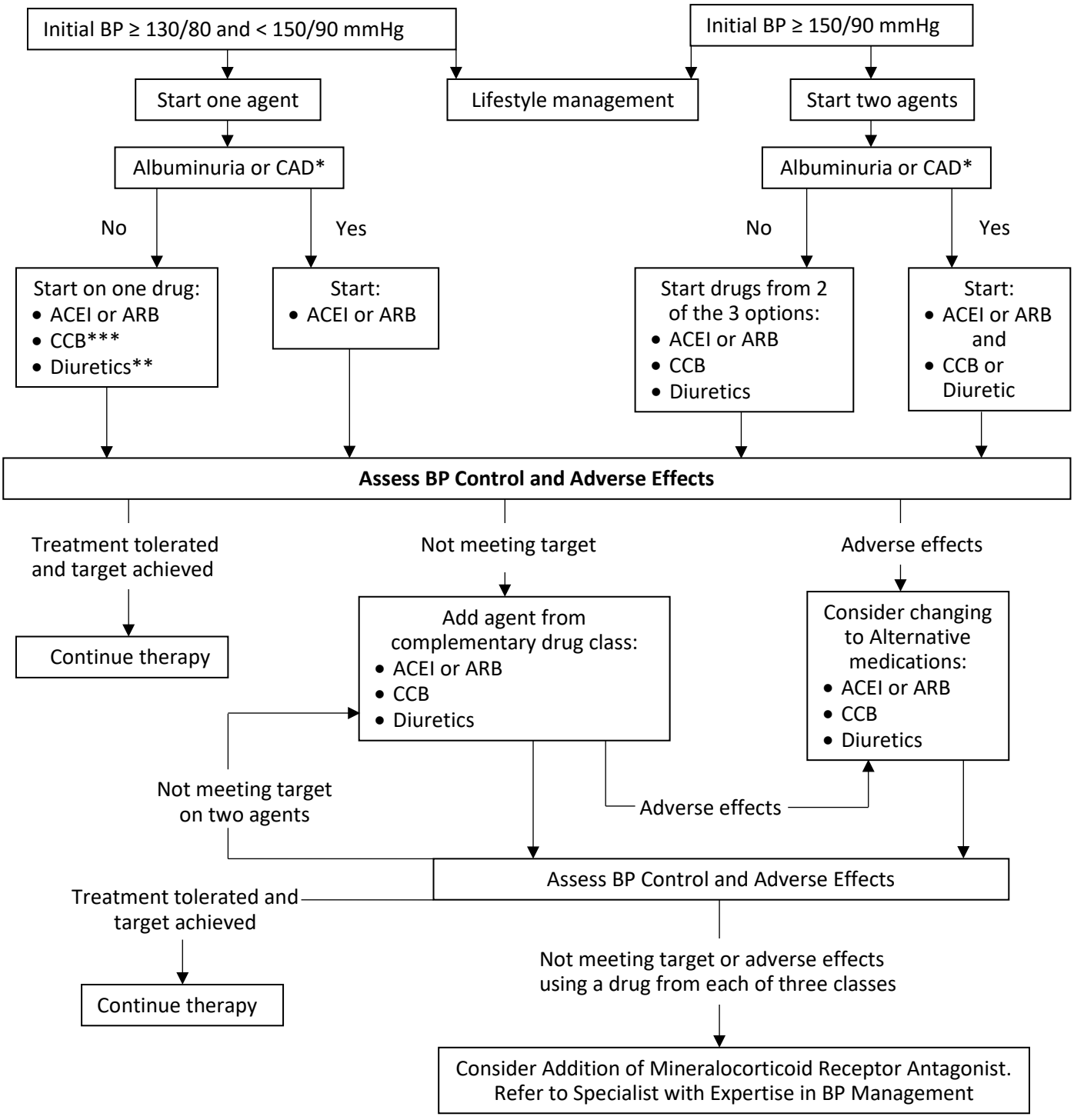
See Algorithm 3 adapted from ADA 2024

Blood Pressure	Treatment Modalities	Anti-Hypertensive Medications for Type 2 DM
> 120/80	Lifestyle changes, DASH-style eating pattern, including reducing sodium and increasing potassium intake, moderation of alcohol intake, and increased physical activity. (↓ Wt, Na+, ETOH, ↑ K+)	First line agents: - ACEI or ARB if albuminuria present - Calcium channel Blockers - Thiazide-like diuretic - Calcium channel Blockers • **DO NOT USE ACEI AND ARB SIMULTANEOUSLY**. Do not use ACEI/ARB with direct renin inhibitors (currently only aliskiren) - Resistant Hypertension: Patients with hypertension who are not meeting blood pressure targets on three classes of antihypertensive medications (including a diuretic) should be considered for **mineralocorticoid receptor antagonist (MRA) therapy.**
≥ 130/80	1 Med + Lifestyle Changes Prompt initiation Timely subsequent titration	
≥ 150/90	2 Med + Lifestyle Changes Prompt initiation Timely subsequent titration	

ASPIRIN USE FOR SECONDARY PREVENTION

- Use aspirin therapy, 75–162 mg/day as a secondary prevention strategy in those with diabetes and a history of atherosclerotic cardiovascular disease
- For patients with atherosclerotic cardiovascular disease and documented aspirin allergy, clopidogrel at 75 mg/day should be used

ALGORITHM 3. Treatment Recommendations for Hypertension in Patients with Diabetes



Recommendations for the treatment of confirmed hypertension in nonpregnant people with diabetes.
*An ACE inhibitor (ACEI) or angiotensin receptor blocker (ARB) is suggested to treat hypertension for patients with coronary artery disease (CAD) or urine albumin-to-creatinine ratio 30–299 mg/g creatinine and strongly recommended for patients with urine albumin-to-creatinine ratio ≥ 300 mg/g creatinine.
**Thiazide-like diuretic; long-acting agents shown to reduce cardiovascular events, such as chlorthalidone and indapamide, are preferred.
***Dihydropyridine calcium channel blocker (CCB). BP, blood pressure.

LDL GOAL FOR PATIENTS WITH DIABETES WITH AND WITHOUT ASCVD[6]	
No ASCVD On statins	For people with diabetes aged 40-75 years with one or more ASCVD risk factors, reduce LDL cholesterol ≥ 50% from baseline and target treatment goal LDL< 70 mg/dL *[Monitoring LDL/lipid panel done to confirm adherence]*
Overt ASCVD – includes those with coronary heart disease, cerebrovascular disease, or PAD	Consider treatment goal LDL <55 mg/dL and *at least 50% reduction from baseline. Specialty referral advised.*

LIPID MANAGEMENT FOR PATIENTS WITH DIABETES[6]

(For details, see CCHCS Dyslipidemia Care Guide)

STATINS for T2D

- Statin treatment initiation and monitoring is based on age, risk factors and ASCVD status (see below)

AGE	RISK FACTORS PRESENCE OF ASCVD	RECOMMENDED STATIN DOSE INTENSITY*	MONITORING AND TREATMENT GOALS FOR ASCVD
< 40 years	None	None	At initiation of therapy, 4-12 weeks after a change, and annually, or more frequently as clinically indicated
	CVD risk factors**	Consider moderate intensity≠	
	Overt ASCVD	High *[A] recommendation*¥	Consider treatment goal LDL <55 mg/dL and *at least 50% reduction from baseline. Lipid panel as indicated.*
≥ 40 years	None	Moderate *Patients 40-75 yrs [A] recommendation*	At initiation of therapy, 4-12 weeks after a change, and annually, or more frequently as clinically indicated (monitoring is primarily done to confirm adherence)
	CVD risk factors**	High *Patients 40-75 yrs [A] recommendation* *Continue statin therapy in patients > 75 yrs. [B] recommendation*	
	Overt ASCVD	High *[A] recommendation* • Add people of all ages with diabetes and ASCVD, high-intensity statin therapy to lifestyle therapy	Consider treatment goal LDL <55 mg/dL and *at least 50% reduction from baseline. Lipid panel as indicated.* See "Dyslipidemia CG" for more details.

¥High-intensity statin—Atorvastatin 40 - 80 mg/d and Rosuvastatin 20 - 40 mg/d
≠Moderate-intensity statin—Atorvastatin 10 - 20 mg/d or Rosuvastatin 5 - 10 mg/d
*In addition to lifestyle therapy
**Major CVD risk factors include LDL cholesterol ≥ 100 mg/dL, high blood pressure, smoking, albuminuria, CKD, and overweight and obesity

Treatment of Other Lipoprotein Fractions

HYPERTRIGLYCERIDEMIA ON STATIN: COMBINATION THERAPY

- For patients with fasting triglyceride levels ≥ 500 mg/dL, evaluate for secondary causes of hypertriglyceridemia and consider medical therapy to reduce the risk of pancreatitis
- Moderate hypertriglyceridemia (fasting or nonfasting triglycerides 175–499 mg/dL), treatment includes, lifestyle factors, obesity and metabolic syndrome, secondary factors, diabetes, chronic liver or kidney disease and/or nephrotic syndrome, hypothyroidism, and medications that raise triglycerides
- In patients with ASCVD or other CV risk factors on a statin with controlled LDL cholesterol but elevated triglycerides (135–499 mg/dL), the addition of icosapent ethyl can be considered to reduce CV risk
- Statin/fibrate combination has not been shown to improve atherosclerotic cardiovascular disease outcomes and is generally not recommended
- Statin plus niacin combination therapy has not been shown to provide additional CV benefit above statin therapy alone, may increase the risk of stroke with additional side effects, and is generally not recommended.

DIABETIC NEPHROPATHY
CKD MONITORING [1, 10,11]

Overview:
CKD is diagnosed by the persistent elevation of urinary albumin excretion (albuminuria), low eGFR, or other manifestations of kidney damage. CKD attributable to diabetes (diabetic kidney disease [DKD]) typically develops after diabetes duration of 10 years in T1D but may be present at diagnosis of T2D. Diabetes related-CKD can progress to end-stage renal disease (ESRD) requiring dialysis or kidney transplantation and CKD markedly increases CV risk.

Screening and Surveillance: Urinary albumin creatinine ratio (UACR) – False Positives occur, ensure 2 tests over 3 – 6 months

- Measure urinary albumin (order includes spot UACR) and eGFR at initial diagnosis and then annually, along with using ACEi/ARB to maximum tolerated doses and achievement of blood pressure targets.
- Measure UACR every 6 months (twice annually) if urinary albumin > 30 mg/g creatinine and/or an eGFR 30–60 mL/min/1.73 m2 to guide therapy
- Normal UACR: < 30 mg/day

Treatment approach for patients with T2D and CKD [1, 10]
In all patients: Lifestyle: healthy diet, physical activity, smoking cessation, and weight management

	Hyperglycemia	Albuminuria +/- Hypertension	Hypertension without Albuminuria	CKD/DKD ASCVD Risk and Lipids
First Line Therapy	SGLT-2: Initiate when GFR is ≥ 20, continue until dialysis or transplant and Metformin If GFR is ≥30	RAS blockers at maximum tolerated dose (For HTN*)	RAS blockers at maximum tolerated dose (For HTN*)	Moderate to high intensity statin
Targeted Therapy	GLP-1 if needed to achieve glycemic target or if persistent albuminuria	Nonsteroidal MRA † if persistent albuminuria and normal potassium	Dihydropyridine (CCB) and/or diuretic if needed to achieve target BP	Antiplatelet agents for clinical ASCVD
Other Agents	Dipeptidyl peptidase-4 (DPP-4) inhibitor, Insulin Add Sulfonylurea, TZD		Steroidal MRA if needed for resistant hypertension if eGFR ≥45	Ezetimibe, PCSK9 inhibitors, icosapent ethyl if indicated based on ASCVD risk and lipids

*Renin-angiotensin-system (RAS) blockers, ACEi or ARB are the recommended first-line therapy for hypertension in patients with T2D when albuminuria is present, otherwise dihydropyridine CCB or diuretic can also be considered. All three classes are often needed to attain BP targets.
†Finerenone is currently the only nonsteroidal MRA with proven clinical kidney and cardiovascular benefits.

Management of CKD in Patients with Diabetes	
GFR (mL/min/1.73m^2)	**Recommended Management**
All diabetic patients	Yearly measurement of creatinine, urinary albumin excretion, potassium
45-60	Referral to a nephrologist recommended for CKD stage 3 or higher
30-44	Monitor eGFR every 3 months
	Monitor electrolytes, bicarbonate, calcium, phosphorus, parathyroid hormone, hemoglobin, albumin, weight every 3-6 months
	Consider the need for adjustment or medication doses due to reduction in renal function
< 30	Referral to a nephrologist

T2D RETINOPATHY[12]

Retinopathy screening and retinal exam for diabetic retinopathy:

- Optimize glycemic, BP, and lipid control to reduce risk or slow progression of retinopathy
- Eye Exams:
  - Can be performed by an optometrist or ophthalmologist, preferably onsite
  - Initial eye exam: indicated shortly after diagnosis in patients with T2D
  - Follow-up eye exam:
    - Annually for individuals with minimal to no retinopathy; however, for patients with no evidence of retinopathy for one or more annual exams and well controlled glycemia – screening every 1-2 years may be considered.
    - If any level of diabetic retinopathy is present, subsequent dilated retinal examinations should be repeated at least annually by an ophthalmologist or optometrist. If retinopathy is progressing or sight-threatening, then examinations will be required more frequently.

HIGH-RISK FEET

Risk for ulcers or amputations increases in patients with diabetes with any of the following:

- Past foot ulcer/open ulcers
- Peripheral neuropathy/loss of protective sensation (LOPS)
- Foot deformity
- Peripheral vascular disease
- Smoking
- Poor glycemic control
- Visual impairment
- Diabetic kidney disease, especially if on dialysis
- Pre-ulcerative callouses or corns

Provide diabetic foot care education at least annually for all patients with High-Risk Feet.

COMPREHENSIVE FOOT EXAM	
History	• High risk feet conditions from above • Neuropathic symptoms: pain, numbness, tingling, prickling, pins and needles sensation • Vascular symptoms: claudication • Impaired vision • Tobacco use • Foot care practices, shoe wear
Inspection	• Skin: focal lesions e.g., calluses, maceration, ulcers, dry skin, tinea pedis • Nails: onychomycotic or dystrophic nails • Deformities: hammer toe, bunion, pes planus or pes cavus
Vascular Exam	• PAD suggested by absence of dorsalis pedis and posterior tibial • Diminished or absent pulses, dependent rubor, and capillary filling time of > 3 seconds • **Consider Ankle Brachial Index (ABI) in patients with diabetes and any of the following:** ○ **Signs and symptoms of PAD - abnormal lower extremity pulse palpation, nonhealing lower extremity wound, asymmetric hair growth, elevation pallor; exertional leg symptoms, lower extremity rest pain, erectile dysfunction, lower extremity wounds or other ischemic skin changes.** ○ **Microvascular disease such as retinopathy, nephropathy, neuropathy, foot complications[6], as end organ damage.** Note: For patients with signs and symptoms suggestive of PAD, measuring resting ABI is recommended to establish the diagnosis. Consider referral to a vascular specialist for further evaluation of patients with these signs and symptoms suggestive of PAD, regardless of ABI, because more specialized testing may be needed to either establish the diagnosis in certain patients or accurately localize the site(s) of obstruction. The following interventions are recommended for patients with symptomatic PAD: ▪ Single antiplatelet therapy, such as aspirin or clopidogrel OR aspirin + low-dose rivaroxaban ▪ High-intensity statin with a goal of ≥ 50% lowering of LDL. If LDL-C is still ≥ 70mg/dL, consider adding ezetimibe or PCSK9 inhibitor. Specialty consult is advised. ▪ ACEI or ARB for BP control with a goal of <130/80 mmHg ▪ GLP-1RA and/or SGLT-2i with demonstrated cardiovascular benefit For patients with claudication, the following intervention can be beneficial: ▪ Supervised exercise program if available at the facility ▪ Cilostazol for patients without heart failure Key points in obtaining an accurate ABI. See details at Noninvasive diagnosis of upper and lower extremity arterial disease - UpToDate: 1. Allow the patient to rest for 15 to 30 minutes prior to measuring the ankle pressure 2. Measure systolic ankle pressure in each lower extremity with a continuous wave Doppler, and use the **higher** ankle pressure (dorsalis pedis or posterior tibial artery) 3. Measure systolic brachial pressure in each upper extremity in the same manner, and use the **higher** of the two brachial systolic pressure 4. Calculate ABI by: Right ABI=$\frac{Higher\ pressure\ in\ Right\ foot}{Higher\ pressure\ in\ Both\ arms}$ Left ABI=$\frac{Higher\ pressure\ in\ Left\ foot}{Higher\ pressure\ in\ Both\ arms}$ ABI can be falsely normal in patients with diabetes due to arterial calcification. Consider consultation with a vascular specialist if clinical findings are inconsistent with the ABI result.

Vascular Exam, cont'd

International Working Group on the Diabetic Foot (IWGDF) 2019 guidelines on diagnosis and management of peripheral artery disease in patients with foot ulcers and diabetes recommends

- Annual foot exam, including relevant history and palpating foot pulses for all patients with diabetes to evaluate for the presence of PAD, even in the absence of foot ulceration. It is reasonable to repeat ABI when the patient's clinical condition changes.

Follow up evaluation and management of patients with microvascular disease, yet no signs or symptoms of PAD, with an abnormal ABI:

- ABI >1.3: This mostly indicates arterial calcification and thus ABI would be an unreliable study. It is recommended to further evaluate the limb perfusion by measuring toe pressure or by routine referral to vascular specialist.
- ABI ≤0.9: This is diagnostic of PAD, yet there is no clear benefit for further testing or referral for asymptomatic patients in this category. See more details at Lower extremity peripheral artery disease: Clinical features and diagnosis - UpToDate.

However, there are several further actions worth considering for these patients:

- These patients would benefit from more careful evaluation for atypical symptoms to see if they are truly asymptomatic.
- ABI ≤0.9 is a recognized risk-enhancing factor for atherosclerotic cardiovascular disease, by the American Heart Association (AHA) and the American College of Cardiology (ACC) (Page e1098 in AHA ACC 2018 Cholesterol Guidelines)
- Interventions for patients with presumed atherosclerotic PAD, in the absence of contraindications
  - Aspirin or clopidogrel
  - High-intensity statin with a goal of ≥ 50% lowering of LDL. If LDL-C is still ≥ 70mg/dL, consider adding ezetimibe or PCSK9 inhibitor. Specialty consult is advised.
  - ACEI or ARB for BP control with a goal of <130/80 mmHg
  - GLP-1RA and/or SGLT-2i with demonstrated cardiovascular benefit
  - Modifying other cardiovascular risk factors and more attention to foot care is also warranted.

The goal of care for these patients is to provide cardiovascular risk reduction, slow the progression and reduce complications of PAD.
See "2024 ACC/AHA/AACVPR guidelines on management of lower extremity PAD" e1336-e1343 for details.

- For patients with PAD and receiving vascular intervention or have a chronic wound, repeating the ABI is part of the surveillance. The frequency of the repeat ABI is dependent on the disease burden.

Neurologic Sensory Exam	Evaluating for Loss of Protective Sensation (LOPS): • **10-g monofilament test** (See Attachment 1) • And at least one of the following: ➢ Vibration using 128 Hz tuning fork tested at tip of great toe bilaterally ➢ Pinprick sensation, using a disposable pin applied just proximal to the toenail on dorsal surface of hallux using just enough pressure to deform skin. Inability to perceive pinprick over either hallux is an abnormal test result ➢ Ankle reflexes One or more abnormal results suggests LOPS At least two normal tests (and no abnormal) rules out LOPS • Surveillance and Education of Loss of Protective Sensation (LOPS): ➢ Risk stratification is dependent on presence of PAD or foot deformity and other factors (See Table 1 at IWGDF 2019 guidelines on prevention of foot ulcers in DM, also cited in Table 12.1 at ADA 2024 retinopathy neuropathy foot care). ➢ Consider annual examination for patients with diabetes at very low risk for foot ulceration (IWGDF risk 0) for signs or symptoms of LOPS and PAD. ➢ Patients with "at risk foot" will need to be examined more frequently, see Table 12.1 at ADA 2024 retinopathy neuropathy foot care for details of frequency. ➢ Educate patients on proper care of the foot and importance of a daily foot inspection. ➢ See CCHCS Foot Care Guide for more details, including when to consider referral to podiatrist. ➢ The information obtained by the repeated foot examination will lead to adjustment of the frequency of screening and related care mentioned above. ➢ Patients with longstanding LOPS, it is not required to repeat the assessment at each screening visit.

***Standards of Medical Care in Diabetes—2022* Abridged for Primary Care Providers** American Diabetes Association; *Clin Diabetes* 2022;40(1):10–38

T2D MEDICATIONS[6]			
Drug Class/ Medication	**Dosing**	**Adverse Effects/ Interactions***	**Comments**
BIGUANIDES			
Metformin (Glucophage®) **Tablet (IR): 500 mg, 850 mg, 1000 mg tabs** $	Initial dose: 500 mg twice daily or 850 mg once daily with meals Titration: After 5-7 days if no GI side effects, increase dose by 500 mg weekly or 850 mg twice daily every other week. (Titrate dose slowly to minimize GI effects) Max dose: Max effective dose may be 1000 mg twice daily, often max effect seen at 850 mg twice daily. Modestly greater efficacy seen with doses up to 2500 mg/day Max dose: 2550 mg/day (Doses > 2000 mg/day better tolerated if given three times daily with meals) Hepatic impairment: Avoid Renal impairment: Contraindicated in eGFR < 30 mL/min. eGFR 31-44 mL/min – Use not recommended. If eGFR < 45 mL/min after initiation assess benefits and risks of continuing treatment. If eGFR falls < 30 – discontinue	• **Black Box Warning:** Lactic acidosis, rare but potentially serious. Risk increases with degree of renal impairment, HF or impaired liver function. Discontinue during acute illness or during hunger strikes where dehydration may occur. • Adverse events: Nausea, diarrhea, cramping, flatulence • **May cause vitamin B12 deficiency with anemia and neuropathy which may be confused with diabetic neuropathy** • Modest weight loss may occur • Drug interactions: Iodinated contrast agents	• **Expected A1C reduction: 1.0 - 2.0%** • Contraindications: Patients with factors predisposing to lactic acidosis: Renal insufficiency with eGFR < 30 mL/min • Temporarily discontinue metformin prior to or at time of IV iodinated contrast administration and withhold for 48 hours thereafter. Restart upon confirmation of normal renal function • Suspend therapy for surgical procedures and resume with confirmation of normal renal function • Pregnancy: Category B • Lactation: Enters breast milk, not recommended • Potential ASCVD benefit • Low hypoglycemia risk
SODIUM-GLUCOSE CO-TRANSPORTER 2 (SLGT2) INHIBITORS			
Empagliflozin (Jardiance®) 10 mg and 25 mg oral tablets $$$$$	Initial dose: 10 mg PO once daily, taken in the morning, with or without food Titration: The dose can be increased to 25 mg PO once daily in those who require additional glycemic control Maximum dosage: 25 mg/day Renal Impairment: eGFR ≥ 20 mL/min: No dosage adjustment needed eGFR < 20 mL/min: Do not initiate empagliflozin in these patients. In patients currently taking the drug, empagliflozin may be continued for cardiorenal protection until initiation of dialysis or kidney transplantation.	• Adverse effects: Intravascular volume contraction. Symptomatic hypotension can occur after initiating empagliflozin • Dehydration, hypotension, urinary frequency, urinary tract infections, including urosepsis and pyelonephritis, balanitis, vaginitis, endocrinopathies, hypoglycemia, hypercholesterolemia, polydipsia • Patients with pre-existing hypercholesterolemia. Monitor LDL-C. Dose-related increases in LDL • Geriatric patients > 75 years old experienced an ↑ incidence of S/E • Drug interactions: Major: chloroquines. Moderate: **beta blockers, thiazides, ACEI and ARBs**, estrogens, progestins and androgens, HIV "avir" medications, **atypical antipsychotics, calcium channel blockers, lithium, corticosteroids, loop diuretics**	• **Expected A1C reduction: 0.5% - 0.7%** • Contraindications: Patients with history of serious hypersensitivity reaction to empagliflozin. Patients with severe renal impairment (eGFR less than 20 mL/min), ESRD/dialysis • Cautions: Serious hypersensitivity reactions or anaphylaxis, including angioedema, have been reported in patients receiving empagliflozin • Patients at risk of acute kidney injury, include those with dehydration or hypovolemia, particularly in patients with impaired renal function (i.e., eGFR 45 to 60 mL/min), the elderly, patients receiving diuretics, or patients with low systolic blood pressure. • Potential ASCVD and HF benefit • Use cautiously in patients with a history of genital fungal infection, including vaginitis or balanitis, and in uncircumcised males • Pregnancy: Category C • Lactation: Unknown - not recommended

*See prescribing information for complete description of dosing, adverse effects, and drug interactions.
Hypersensitivity to the medication, medication class, or a component of the formulation is a contraindication to use of the drug.
The cost scale $-$$$$$ represents the relative cost of acquisition of medication only. When determining overall cost-effectiveness of treatment, consider frequency and complexity of medication administration (institution workload, effect on adherence)
Pharmacologic Approaches to Glycemic Treatment: Standards of Medical Care in Diabetes—2022.
Diabetes Care 2022;45(Suppl. 1):S125–S143
Bold = Formulary

T2D MEDICATIONS (cont'd)			
Drug Class/ Medication	**Dosing**	**Adverse Effects/ Interactions***	**Comments**
GLUCAGON-LIKE PEPTIDE-1 (GLP-1) AGONIST (Incretin Mimetic)			
Oral Semaglutide Rybelsus® Dose: 3mg, 7 mg and 14 mg $$$$$	Start RYBELSUS® with 3 mg once Daily for 30 days. After 30 days on the 3 mg dose, increase the dose to 7 mg once daily. If additional glycemic control is needed after at least 30 days on the 7 mg dose, the dose can be increased to 14 mg once daily.	• The most common adverse reactions, reported in ≥5% of patients treated with RYBELSUS® are nausea, abdominal pain, diarrhea, decreased appetite, vomiting and constipation	**Expected A1C reduction: 1.3%** Contraindications: • Personal or family history of medullary thyroid carcinoma (MTC) or in patients with Multiple Endocrine Neoplasia syndrome type 2 (MEN 2) • Patients with a prior serious hypersensitivity reaction to semaglutide or to any of the excipients in RYBELSUS® • **Serious hypersensitivity reactions including anaphylaxis and angioedema have been reported with RYBELSUS**
Liraglutide (Victoza®) Injection soln: 1 mL, 0.6 mg $$$$$	Initial dose: Administer once daily at any time of day, independently of meals. Initially, 0.6 mg subcutaneously once daily for 1 week. The 0.6 mg dose is a starting dose intended to reduce GI symptoms during initial titration and is not effective for glycemic control. Administer by subcutaneous injection only. Do not administer by intravenous or intramuscular injection. Titration: After 1 week, increase the dose to 1.2 mg subcutaneously once daily. If acceptable glycemic control not achieved, the dose can be increased to 1.8 mg subcutaneously once daily. If a dose is missed, resume the once daily regimen as prescribed with the next scheduled dose. If more than 3 days have elapsed since the last dose, reinitiate at 0.6 mg in order to alleviate any GI symptoms associated with reinitiating of treatment. The dose is then re-titrated appropriately. Max dose: 1.8 mg/day SC	• **Black Box Warning:** Liraglutide has been shown to cause dose-dependent and treatment duration-dependent malignant thyroid C-cell tumors at clinically relevant exposures in animal studies at 8 times normal dose. Relevance in humans is not known • **Adverse effects:** GI: Slows gastric emptying with resultant N/V, diarrhea. Anorexia, dyspepsia, HA, flatulence, constipation. Monitor for hypoglycemia when liraglutide treatment is initiated and continued • Fatigue, infections, dizziness, injection site reactions • **Severe but less common:** Cholecystitis, pancreatitis, AV Block, suicidal ideation, angioedema, anaphylactoid reactions, bronchospasm, palpitations • Drug Interactions: **Major: hydroxyquinoline and chloroquine** **Moderate:** Salicylates, Beta Blockers Acetaminophen, ASA, caffeine, Phenyltoloxamine, lithium Acetazolamide, aliskiren, Valsartan, Amlodipine, HCTZ, Androgens, progestins and estrogens, Metoclopramide, ACEI and ARBs, omeprazole, oxycodone, fibric acid derivatives, fluoxetine, Insulins, Sulfonamide, Calcium channel blockers, Darunavir, Cyclosporins, Clonidine, Ciprofloxin, risk for hypoglycemia	• **Expected A1C reduction: 0.5-1.0%** • Contraindications: Patients with a personal or family history of certain types of thyroid cancer, specifically medullary thyroid carcinoma (MTC), or in patients with multiple endocrine neoplasia syndrome type 2 (MEN 2) • Patients with a history of serious hypersensitivity reaction to liraglutide • Caution: Patients with a history of angioedema to other GLP-1 receptor agonists. Serious hypersensitivity reactions have been reported during post marketing use with liraglutide, such as anaphylaxis or angioedema • Liraglutide is not recommended for patients with Type 1 DM or for the treatment of diabetic ketoacidosis • Use caution in patients with gastroparesis • There is limited information available on the use of liraglutide in patients with renal impairment • There is limited information available on the use of liraglutide in patients with hepatic disease • Patients with risk factors for pancreatitis (cholelithiasis, GB disease, alcoholism, prior history) • Pregnancy: Category C • Lactation: Unknown effect, use caution • Caution: Patients with depression and avoid use in patients with a history of suicide attempts or active suicidal ideation. Monitor patients receiving liraglutide for the emergence or worsening of depression, suicidal thoughts or behavior, and/or any unusual changes in mood or behavior • Liraglutide has not been evaluated for use in combination with prandial insulin

*See prescribing information for complete description of dosing, adverse effects, and drug interactions.
Hypersensitivity to the medication, medication class, or a component of the formulation is a contraindication to use of the drug.
The cost scale $-$$$$$ represents the relative cost of acquisition of medication only. When determining overall cost-effectiveness of treatment, consider frequency and complexity of medication administration (institution workload, effect on adherence)
Pharmacologic Approaches to Glycemic Treatment: Standards of Medical Care in Diabetes—2022.
Diabetes Care 2022;45(Suppl. 1):S125–S143

Bold = Formulary

T2D MEDICATIONS (cont'd)			
Drug Class/ Medication	**Dosing**	**Adverse Effects/ Interactions***	**Comments**
GLUCAGON-LIKE PEPTIDE-1 (GLP-1) AGONIST (Incretin Mimetic) cont'd			
Dulaglutide (Trulicity®) **Injection soln: 0.75 mg/0.5 mL, 1.5 mg/0.5 mL, 3 mg/ 0.5 mL, 4.5 mg/0.5 mL** **$$$$$**	Initial dose: 0.75 mg subcutaneously once weekly. Titration: Increase dose to 1.5 mg for additional glycemic control. If additional glycemic control is needed, increase the dose to 3 mg once weekly after at least 4 weeks on the 1.5 mg dose. If additional glycemic control is needed, increase to 4.5 mg once weekly after at least 4 weeks on the 3 mg dose. Max dose: 4.5 mg weekly If a dose is missed, administer the missed dose as soon as possible if there are at least 3 days (72 hours) until the next scheduled dose Administer once weekly at any time of day with or without food Inject subcutaneously in the abdomen, thigh, or upper arm Rotate injection sites with each dose. Hepatic impairment: No dose adjustments. Use with caution Renal impairment: No dose adjustment. Use with caution in patients with ESRD	**Black Box Warning:** Dulaglutide causes a dose-related and treatment duration dependent increase in the incidence of thyroid C-cell tumors (adenomas and carcinomas) after lifetime exposure in animal studies. Relevance in humans has not been determined. **Adverse effects:** nausea, diarrhea, vomiting, abdominal pain, decreased appetite, dyspepsia, fatigue **Serious but less common:** pancreatitis, acute kidney injury, retinopathy, cholelithiasis, AV block, angioedema, anaphylactoid reactions Drug interactions: chloroquine, hydroxychloroquine, risk of hypoglycemia with used with sulfonylureas; dose-dependent delay in gastric emptying and potential to reduce the rate of absorption of concomitantly administered oral medications	**Expected A1C reduction: 1.8%** Contraindications: Patients with a personal or family history of medullary thyroid carcinoma or in patients with Multiple Endocrine Neoplasia syndrome type 2.Patients with a serious hypersensitivity reaction to dulaglutide or any of the product components Use is not recommended in patients with preexisting severe GI disease, including severe gastroparesis. When initiating dulaglutide, consider reducing the dose of concomitantly administered insulin secretagogues (e.g., sulfonylureas) or insulin to reduce the risk of hypoglycemia When using dulaglutide concomitantly with insulin, administer as separate injections. Never mix them together. The two injections may be injected in the same body region, but the injections should not be adjacent to each other Pregnancy category: C Benefit: Possible CVD benefit
DIPEPTIDYL PEPTIDASE-4 (DPP-4) INHIBITORS			
Sitagliptin (Januvia®) Tablets: 25 mg, 50mg, 100 mg $$$$$ Nonformulary preferred	Initial and maintenance dose: 100 mg once daily Max dose: 100 mg/day Renal impairment: CrCl 30-44 ml/min: 50 mg daily CrCl < 30 ml/min: 25 mg daily	• Adverse effects: Nasopharyngitis, diarrhea, nausea, abdominal pain • Rare severe hypersensitivity reactions including anaphylaxis, angioedema, exfoliative dermatitis, especially w/in first 3 mos. of therapy • Acute pancreatitis • Severe and disabling arthralgias • Drug interactions: Major: CYP3A4/5 inhibitors	• **Expected A1C reduction: 0.5 - 0.7%** • Assess renal function prior to initiation and periodically thereafter • Reduce dose of sulfonylurea or insulin when used with sitagliptin to minimize hypoglycemia risk • Pregnancy: Category B • Lactation: Unknown effect, use caution • Concomitant use of DPP-4i and GLP-1 RAs not recommended. No additional clinical benefit when used together

*See prescribing information for complete description of dosing, adverse effects, and drug interactions.
Hypersensitivity to the medication, medication class, or a component of the formulation is a contraindication to use of the drug.
The cost scale $-$$$$$ represents the relative cost of acquisition of medication only. When determining overall cost-effectiveness of treatment, consider frequency and complexity of medication administration (institution workload, effect on adherence)

Pharmacologic Approaches to Glycemic Treatment: Standards of Medical Care in Diabetes—2022.
Diabetes Care 2022;45(Suppl. 1):S125–S143

Bold = Formulary

T2D MEDICATIONS (cont'd)

Drug Class/ Medication	Dosing	Adverse Effects/ Interactions*	Comments
THIAZOLIDINEDIONES (TZDs)			
Pioglitazone (Actos®) **Tablet: 15 mg, 30 mg, 45 mg** **$**	Initial dose: 15-30 mg once daily Titration: Increase dose by 15 mg increments Max dose: 45 mg/day Concomitant CYP2C8 inhibitors (e.g., gemfibrozil) or HF (NYHA class I or II): Max 15 mg/day Hepatic impairment: Moderate or severe: Avoid	• **Black Box Warning: May cause or exacerbate heart failure.** Closely monitor for signs and symptoms of heart failure, especially after initiation or dose increase. If heart failure occurs treat accordingly and consider dose reduction or discontinuation • Adverse effects: Weight gain, edema, HF, possible hepatic injury; possible increased risk • Drug interactions: Strong CYP2C8 inhibitors (e.g., gemfibrozil); CYP2C8 inducers (e.g., rifampin)	• **Expected A1C reduction: 0.7 - 0.9 %** • Contraindications: Symptomatic HF; HF NYHA Class III or IV • Caution: Combination use with insulin in patients with heart failure, and HF NYHA Class I and II • Monitor LFTs, avoid if ALT > 2.5 times normal before starting therapy, discontinue if ALT > 3 times normal during therapy • If used with insulin, reduce insulin dose by 10-25% once FBG <120 mg/dl • Reduce dose of sulfonylurea when used with TZDs to minimize hypoglycemia risk • Pregnancy: Category C • Lactation: Unknown effect, not recommended
SULFONYLUREAS			
Glipizide (Glucotrol®) **Tablet (IR): 5 mg, 10 mg** **$**	Initial dose: 5 mg once daily; 2.5 mg once daily in elderly Titration: Increase dose by 2.5 mg or 5 mg every 1-2 weeks Max dose: 40 mg/day (Doses >15 mg/day, divided into 2 doses) Hepatic impairment: Initial dose 2.5 mg/day **DO NOT USE GLYBURIDE**	• Adverse events: Hypoglycemia, weight gain, dizziness, nausea, asthenia • Increased risk of hypoglycemia when sulfonylurea used with non-basal insulin • Stop when on basal with prandial insulin regimens	• **Expected A1C reduction: 0.7 - 0.9%** • Glyburide is no longer recommended due to hypoglycemic risk • Best given before a meal, preferably breakfast (if once daily dosing) • Possible cross reaction in those allergic to sulfonamides • Pregnancy: Category C • Lactation: Unknown effect, not recommended

INSULIN

Insulin Class *See treatment algorithm page 11*	Specific Insulin	Onset	Peak	Duration	Cost
Short-acting*	Regular – Humulin R	30-60 minutes	2 to 4 hours	5 to 10 hours	$$
Intermediate-acting	NPH – Humulin N	1 to 2 hours	4 to 8 hours	10 to 20 hours	$$
Premixed	NPH/regular – Humulin 70/30	30 minutes	Dual peak	Up to 24 hours	$$
Long-acting (basal)	Glargine – Lantus (Not to be mixed with other insulins)	1 to 2 hours	Relatively flat	20 to 24 hours	$$$$
Rapid or Ultra rapid-acting* **DO NOT USE** - NOT INDICATED IN CORRECTIONAL SETTING PER CCHCS POLICY. FBOP in general does not use rapid-acting	Lispro (Humalog) Aspart (Novolog) Glulisine (Apidra)	15 - 30 minutes 10 - 20 minutes 20 - 30 minutes	30-90 min 40-50 min 30-90 min	3-5 hours 3-5 hours 1 to 1.5 hours	$$$$

*See prescribing information for complete description of dosing, adverse effects, and drug interactions.
Hypersensitivity to the medication, medication class, or a component of the formulation is a contraindication to use of the drug.
The cost scale $-$$$$$ represents the relative cost of acquisition of medication only. When determining overall cost-effectiveness of treatment, consider frequency and complexity of medication administration (institution workload, effect on adherence)

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Bold = Formulary

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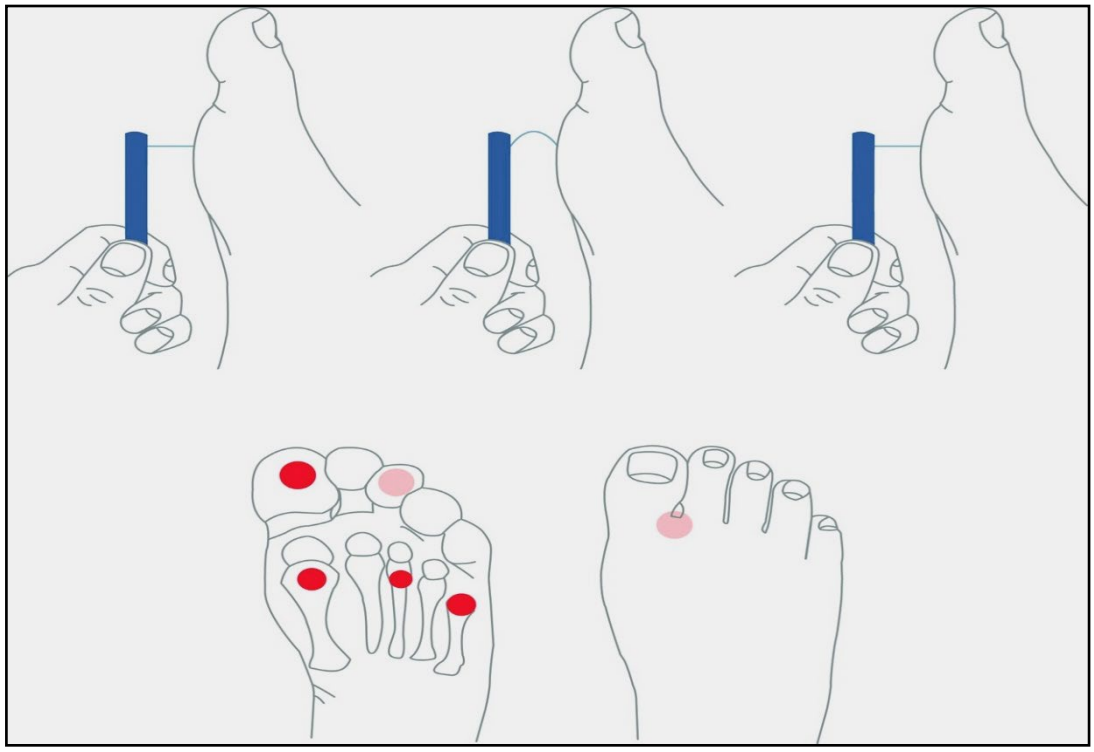
Attachment 1

MONOFILAMENT[1] TESTING

1. Place patient in supine or sitting position with shoe and socks removed.
2. Touch the disposable monofilament to patient's skin on his/her arm or hand to demonstrate what the touch feels like.
3. Instruct patient to respond "yes" each time he/she feels the pressure of the monofilament on his/her foot during the exam.
4. Instruct patient to close his/her eyes with toes pointing straight up during the exam.
5. Hold the monofilament perpendicular to the patient's foot (see top panel of diagram below).
6. Press it against the foot, increasing the pressure until the monofilament bends into a C-shape. Do not apply over ulcer, callus, scar, or necrotic tissue. Do not slide monofilament over the skin.
7. Inform the patient you will test each location twice; one touch will be real, and one will not. Press the filament to the skin such that it buckles (and hold in place for about 1 second) at one of two times you test each site as you say, "time one" or "time two." Have patients identify at which time they were touched.
8. It is recommended to test at least 4 sites on each foot (see lower panel of diagram below: 1st, 3rd, and 5th metatarsal heads and plantar surface of distal hallux, other spots are optional).
9. Randomize the sequence of applying the filament or not throughout the examination.
10. Record response on foot screening form with "+" for yes it was felt and "-" for no. The patient should recognize the perception of pressure and identify the correct site.
11. When the monofilament is not felt, protective sensation is absent, placing the person at high risk for development of a neuropathic ulcer.



Record a "**+**" if the patient can feel the monofilament

Record a "**-**" if the patient is unable to feel the monofilament

Standards of Medical Care in Diabetes—2022 **Abridged for Primary Care Providers** American Diabetes Association *Clin Diabetes* 2022;40(1):10–38

Attachment 2

PREVENTION & MANAGEMENT OF HYPOGLYCEMIA

- Patients who are prone to hypoglycemia should have access to glucose tablets, glucose gel, or a diabetic snack
- Medical responders should also have ready access to glucose tablets or the equivalent
- Patients receiving insulin or oral antihyperglycemic agents may develop hypoglycemia during illness, with greatly increased activity (exercise) level, or decreased food intake.
- Profound hypoglycemia may develop when meals are delayed or missed
- Ask about hypoglycemic episodes at each visit
- Counsel patients to eat within 30 minutes of insulin administration
- Closely monitor elderly patients for signs of hypoglycemia
- Consider Counseling Patients on the Following Topics:
  - The importance of a consistent diet and activity level
  - To report for insulin injection prior to eating (fasting) to ensure meaningful FSBG results
  - To discuss with the provider possible insulin or oral hypoglycemic dosage adjustments during illness
  - To tell the RN if the FSBG is in fact, post prandial so it can be documented with the results

TREATMENT

Classification of Hypoglycemia	Description	Treatment
Alert Value ≤ 70 mg/dL	Conscious with or without symptoms Requires treatment and adjustment of therapy	**Acute phase:** 15-20 grams of glucose preferred for conscious individuals but any form of carbohydrate that contains glucose can be used: • Austin Peanut butter/cheese and crackers pack = 16 carbs and 3g of sugar • Keebler Graham cracker pack = 11 g carbs and 3g sugars • Clinic and KOP sugar tablets are 4 g of sugar each • There is also a 40% dextrose gel which has 22 grams of sugar each Recheck in 15 minutes, if still <70 mg/dL, repeat above Follow with high sugar content snack with low protein and fat* **Once normoglycemic (BS >80 mg/dl)** – eat meal or snack Consider bedtime snack if at continued risk
Clinically Significant < 54 mg/dL	Serious and clinically important	Same as above with vigilance for progression to severe.
Severe Severe cognitive impairment or unconscious Requires third party assistance	Associated with immediate mortality and 5-year mortality and increases risk for development of dementia	**Glucagon** 1 mg IM, IV or subQ (Crash carts carry a 1 mg syringe kit). If fails, use IV Dextrose. **Repeat every 15 minutes** as needed. • Administer **IV Dextrose** as soon as it is available (Crash carts carry bags of Dextrose 50% solution) • Prolonged monitoring may be required if on long-acting insulin or insulin secretagogues. • If unexplained or recurrent severe, on long-acting insulin or on insulin with poor oral intake: Admission to a medical unit for observation and stabilization may be indicated. • ADA advises to increase glycemic targets for at least several weeks as it has been demonstrated to improve counter-regulation and hypoglycemic awareness.

*Fat may retard and then prolong the acute glycemic response. In type II DM, protein may increase insulin response without increasing plasma glucose concentrations.

Attachment 3

DETECTION AND DIAGNOSIS OF GESTATIONAL DIABETES MELLITUS (GDM)[1]

It is best practice to screen for patients in the first trimester who have a BMI ≥ 25 kg/m2 and any of the following risk factors:

- Physical inactivity
- First degree relative with DM
- High-risk patient populations include African American, Latino, Native American, Asian American, Pacific Islander
- Hypertension (BP > 140/90 mmHg or on treatment for Hypertension)
- Hypercholesterolemia
- A1C ≥ 5.5% (36.6 mmol/mol, IGT, IFG on previous testing)
- Delivered a baby weighing > 9 pounds (4.1 kg) or previously diagnosed with GDM
- Clinical conditions associated with insulin resistance. E.g., Acanthosis nigricans, polycystic ovarian syndrome.
- History of CVD
- Smoking

All pregnant patients who were not screened in the first trimester should be tested for GDM at 24-28 weeks of gestation.

Screening and Diagnosis:

1. Perform an 8-hour fasting 75-g OGTT at 24-28 weeks of gestation in women not previously diagnosed with overt DM.

Diagnostic for GDM if:

- Fasting: 92 mg/dl (a fasting glucose of > 126 is diagnostic of overt DM [Pre-gestational diabetes])
- 1 h: 180 mg/dl
- 2 h: 153 mg/dl

2. Two-Step non-fasting 50 g Glucose Load Testing
   - 1 h: if it is ≥ 140 mg/dl, proceed to a fasting 100-g OGTT
   - Diagnostic for GDM if (at least two of the following four):

Fasting	95 mg/dl	105 mg/dl
1 hour	180 mg/dl	190 mg/dl
2 hour	155 mg/dl	165 mg/dl
3 hour	140 mg/dl	145 mg/dl

Carpenter/Coustan* or NDDG**

Thresholds vary depending on the organization/authors. The most commonly cited (per UpToDate) are listed here:

*Carpenter MW, Coustan DR. Criteria for screening tests for gestational diabetes. Am J Obstet Gynecol 1982;144:768–773.

**NDDG: National Diabetes Data Group. Classification and diagnosis of diabetes mellitus and other categories of glucose intolerance. Diabetes 1979;28:1039–1057.

DIAGNOSED WITH GDM – WHAT TO DO

- **REFER to OBSTETRICS.** These patients should be followed as high-risk pregnancies.
- **CHECK MEDICATIONS** E.g., ACEI, statins are teratogenic. Discharge medications not compatible with pregnancy.
- **REFER TO DIETITIAN**
- **REFER TO OPHTHALMOLOGY/OPTOMETRY—GDM high risk for retinopathy or progression.**

  1) Retinal eye exams should occur ideally before pregnancy or in the 1st trimester

  2) Monitor every trimester and for up to 1 year post-partum as indicated by the degree of retinopathy and recommendations of eye care provider.
- **USE INSULIN** for hyperglycemia not controlled with lifestyle. Glycemic control as close to normal as is safely possible, ideally A1C < 6.5%, to reduce the risk of congenital anomalies.*

*Uncontrolled glycemia during gestation is associated with miscarriage, stillbirth, preterm labor and delivery, large birthweight and C-Sec, postnatal hypoglycemia, anencephaly, microcephaly, spinal cord lesions, congenital heart disease, generic anomalies, and cleft palate.

PATIENT EDUCATION **DIABETES: WHAT YOU SHOULD KNOW**

WHAT IS DIABETES?

Diabetes is a disease that causes high amounts of glucose (sugar) in the blood.
It is caused by the body not making enough insulin or not being able to use the insulin it has.

Diabetes can lead to serious health problems including:

- High blood pressure
- Eye/vision problems
- Kidney disease
- Digestive problems
- Amputation of toes or feet
- Slow wound healing
- Heart attacks
- Strokes
- Nerve damage throughout your body
- Skin problems
- Infections in your mouth
- Slow response to medical treatment

SYMPTOMS TO WATCH FOR IF YOU HAVE DIABETES

High blood sugar (hyperglycemia) symptoms

- Thirst
- Frequent urination
- Blurred vision

What are the causes of high blood sugar?

- Too much food
- Too little diabetes medicine
- Illness
- Stress

Low blood sugar (hypoglycemia) symptoms

- Shaky
- Sweating
- Fast heartbeat
- Nausea
- Drowsiness
- Coma
- Hungry
- Headache
- Confusion
- Cranky
- Tired
- Seizures

What are the causes of low blood sugar?

- Too little food
- Extra exercise
- Too much diabetes medicine or insulin

What to do if you have symptoms of high blood sugar

- Be sure to drink plenty of water.
- Contact your health care team.

What to do if you have symptoms of low blood sugar

- Immediately tell someone what is going on.
- Eat or drink something with sugar in it.
- Contact your health care team if you don't feel better in 15 minutes.

DIABETES: WHAT YOU SHOULD DO

KNOW THE ABCs OF DIABETES:

A

A1C

- The A1C is a blood test that measures your average blood sugar level over the past three months.
- It is different from the blood sugar checks you do from your finger.
- A1C is usually less than 6.5% in people without diabetes. In people with diabetes, the goal is an A1C less than 7-8% (your health care provider will tell you what your personal

B

Blood Pressure

- Blood pressure is the force of your blood against the walls of your blood vessels.
- If your blood pressure gets too high, it makes your heart work too hard.
- High blood pressure can cause a heart attack, kidney disease, or a stroke.
- Your blood pressure should be below 130/80 unless your health care provider tells you a different goal.
- Blood pressure control is important in diabetes. Be sure to have your blood pressure checked at every health care visit.

C

Cholesterol (ko-LESS-ter-ol)

- Cholesterol is a chemical in your blood. LDL is the "bad" cholesterol that can build up and clog your blood vessels, which can cause a heart attack or stroke.
- Most people with diabetes are prescribed medication called "statins" to lower their "bad" cholesterol.
- Your health care provider will check your blood LDL cholesterol level, often once a year, but sometimes less often if you are taking cholesterol medication.

WHAT ELSE SHOULD YOU DO IF YOU HAVE DIABETES?

- Do not smoke.
- Take your medications as directed.
- Control your weight. The best way to maintain a good weight is to eat a healthy diet and exercise more.
  - Be active at least 30 minutes on most days. You can walk, jog, or do exercises in your cell, even during lockdowns.
  - Eat a healthy diet: limit breads and pastas, canteen junk foods, candy, and ice cream.
- Try to lower stress levels.
- Check your feet every day for cuts, blisters, red spots, and swelling.
- Report any changes in your vision to your health care provider.
- Be sure to get regular check-ups.
- Talk to health care staff about when to get lab tests, foot, eye, dental, and medical exams to monitor your condition.

POTENTIAL BENEFITS OF EXERCISE IF YOU HAVE DIABETES

- Weight loss and maintenance of normal weight
- A stronger, healthier heart
- Improved sleep
- Improved mood
- Improved blood pressure, cholesterol, and blood sugar levels
- Fewer medications needed to control your blood sugar.

DIABETES: FOOT CARE

WHY IS FOOT CARE IMPORTANT?

Diabetes can cause you to lose feeling in your feet (numbness).

When you have numbness or can't feel your feet, they can get injured, often without you knowing it from:

- Something that breaks your skin (such as a cut)
- A deep wound (such as stepping on something sharp)
- Walking barefoot on a hot surface
- Constant pressure in one spot (from a tight shoe)

HOW DO I KEEP MY FEET HEALTHY?

- Check your feet every day.
  - Look for red spots, sores, infected toenails, swelling, cuts, and blisters.
- Wear shoes and socks at all times.
- Wear comfortable shoes that protect your feet and fit well.
- Protect your feet from hot and cold.
- Keep blood flowing to your feet.
  - Put your feet up when sitting.
  - Move your ankles and wiggle your toes throughout the day.
  - Do not cross your legs for long periods of time.

- Wash your feet every day.
  - Dry your feet carefully, especially between the toes.
- Keep the skin of your feet soft and smooth.
  - If you have lotion, you can use a thin coat over the tops and bottoms of your feet, but not between your toes.

- Carefully trim your toenails regularly. Ask your health care team for assistance if needed.
- Take care of your diabetes
  - Work with your health care provider to keep your blood sugar levels in your target range.
- Don't smoke.

- Be more active.

HOW DO I TREAT FOOT PROBLEMS?

- Talk to your health care provider if you have any foot problems.

EDUACIÓN PARA EL PACIENTE — DIABETES: LO QUE DEBE SABER

¿QUÉ ES LA DIABETES?

La diabetes es una enfermedad que genera altas cantidades de glucosa (azúcar) en la sangre. Es causada cuando el organismo no produce suficiente insulina o no es capaz de usar la que tiene.

La diabetes puede llevar a problemas severos de salud como:

- Presión arterial alta
- Problemas en ojos/visión
- Enfermedades renales
- Problemas digestivos
- Amputación del pie o de sus dedos
- Cicratización lenta de las heridas
- Ataques cardíacos
- Derrames cerebrales
- Daños a los nervios en todo el cuerpo
- Problemas de la piel
- Infecciones en tu boca
- Respuesta lenta al tratamiento médico

SÍNTOMAS QUE DEBE CONTROLAR SI TIENE DIABETES

Síntomas de altos niveles de azúcar en la sangre (hiperglicemia)

- Sed
- Micción frecuente
- Visión borrosa

Síntomas de bajos niveles de azúcar en la sangre (hipoglicemia)

- Tembloroso
- Transpiración
- Latidos cardíacos acelerados
- Náuseas
- Somnolencia
- Coma
- Hambre
- Dolor de cabeza
- Confusión
- De maniático
- Cansado
- Convulsiones

¿Cuáles son las causas de los altos niveles de azúcar en la sangre?

- Demasiada comida
- Poco medicamento para la diabetes
- Enfermedad
- Estrés

¿Cuáles son las causas de los altos niveles de azúcar en la sangre?

- Muy poca comida
- Ejercicio extra
- Demasiado medicamento para la diabetes o insulina

Lo que debe hacer cuando hay síntomas de altos niveles de azúcar en la sangre

- Asegúrese de tomar mucha agua
- Comuníquese con su elenco tratante

Lo que debe hacer cuando hay síntomas de bajos niveles de azúcar en la sangre

- Immediamente dile a alguien lo que está pasando.
- Coma o beba algo que contenga azúcar.
- Comuníquese con su elenco tratante si no se siente mejor en los siguientes 15 minutos

DIABETES: LO QUE DEBE HACER

1 **A1C**

- La A1C es una prudba sanguínea que mide su nivel promedio de azúcar en la sangre en los tres meses anteriores.
- Es diferente de las prudbas de azúcar en la sangre que se realizan con el dedo.
- La A1C es, normalmente, inferior a 6.5% en las personas sin diabetes. En las personas con diabetes, la meta es un A1C inferior al 7-8% (su elenco tratante le dirá cual debería ser su meta A1C personal, ya que esta meta es diferente para cada persona).

2 **Presión arterial**

- La presión arterial as la fuerza de su sangre contra las paredes de sus vasos sanguíneos.
- Si su presíon arterial se eleva mucho, hace trabajar demasiado a su corazón.
- La presión arterial alta puede causar un ataque cardíaco, enfermedad renal o un derrame cerebral.
- Su presión arterial debería ser menor de 130/80 a menos que su médico le indique otra meta a alcanzar.
- El control de la presión arterial es importante en la diabetes. Asegúrese de hacerse revisar su presíon arterial en cada consulta médica.

3 **Colesterol**

- El colesterol es una sustancia química en su sangre. LDL es el colesterol "malo" que puede acumularse y obstruir sus vasos sanguíneos, lo que puede causar un ataque cardíaco o un derrame cerebral.
- A la mayoría de las personas con diabetes se les prescribe medicamentos llamados "estatinas" par reducir su colesterol "malo".
- Su médico controlará su nivel de colesterol LDL en la sangre, frecuentemente una vez al año, pero a veces con menos frecuencia si está tmando medicamentos para el colesterol.

¿QUÉ MÁS DEBERÍA HACER SI TIENE DIABETES?

- No fume.
- Tome sus medicamentos tal como le sean prescritos.
- Controle su peso. La mejor manera de mantener un buen peso es llevar una dieta sana y ejercitarse más.
  - ► Haga alguna actividad al menos 30 minutos la mayoría de los días. Puede caminar, trotar o hacer ejercicio en su celda, aún durante un encierro institucional.
  - ► Lleve una dieta sana: limite los panes y pastas, las comidas chatarra compradas en la cantina, golosinas y helados.
- Intente reducir sus niveles de estrés.
- Revise sus pies diariamente; busque cortadas, ampollas, puntos rojos e inflamación.
- Informe a su médico cualquier cambio en su visión.
- Asegúrese de tener chequeos médicos regulares.
- Hable con el personal médico para saber cuándo debe hacerse pruebas de laboratorio, y pies, los ojos, los dientes, y exámenes médicos para controlar su condición.

BENEFICIOS POTENCIALES DEL EJERCICIO SI TIENE DIABETES

- Pérdida de peso y mantenimiento de un peso normal.
- Un corazón más fuerte y sano.
- Un sueño mejorado.
- Un estado de ánimo mejorado.
- Una presión arterial mejorada, además de niveles de colesterol y azúcar en la sangre mejorados.
- Reducir la cantidad de medicamentos necesarios para controlar el azúcar en la sangre.

DIABETES: CUIDADO DE LOS PIES

¿POR QUÉ ES IMPORTANTE EL CUIDADO DE LOS PIES?

La diabetes puede hacer que pierda sensación en sus pies (los pies se entumecen).

Cuando tiene entumecimiento o no puede sentir sus pies, estos se pueden herir y frecuentemente sin que usted se dé cuenta, por:

- Algo que le rompa la piel (como una cortada)
- Una herida profunda (como cuando pisa algo puntiagudo)
- Caminar descalzo sobre una superficie caliente
- Presión constante en algún punto determinado (por un calzado apretado)

¿CÓMO MANTENGO MIS PIES SANOS?

Heridas diabeticas

- Revise sus pies diariamente.
  - Busque puntos rojos, llagas, uñas infectadas, inflamación, cortadas y ampollas.
- Siempre use zapatos y calcetines.
- Use zapatos cómodos que protejan sus pies y calcen bien.
- Proteja sus pies del calor y del frío.
- Mantenga la sangre circulando a sus pies.
  - Levante los pies mientras esté sentado.
  - Mueva sus tobillos y los dedos de los pies durante el curso del día.
  - No mantenga sus piernas cruzadas durante largos periodos de tiempo.
- Lave sus pies todos los días.
  - Seque sus pies con cuidado, especialmente entre los dedos.

Manten los dedos de los pies secos
Mirate los pies todas los dias

- Mantenga la piel de sus pies suave y terso.
  - Si tiene loción puede usar una capa delgada sobre las partes superiores e inferiores de sus pies, pero no entre los dedos.
- Con cuidado, córtese las uñas de los dedos de los pies regularmente.
  - Pida ayuda a su elenco tratante de ser necesario.

- Atienda su diabetes.
  - Trabaje con su médico para mantener sus niveles de azúcar en la sangre dentro del rango establecido como meta.
- No fume.

- Realice más actividades.

¿CÓMO TRATO LOS PROBLEMAS DE LOS PIES?

- Hable con su médico si tiene algún problema con los pies.