

Summary of Care Model for Type 2 Diabetes Mellitus in non-pregnant adults

Screening for T2DM

Screen with FPG, 2-hr OGTT, A1C.
Screen everyone ≥ 45 YO.
Screen < 45 YO if:
-BP $\geq 135/80$, BMI ≥ 25 , and 1 additional risk factor

- *IFG or IGT
- *1st degree family member with DM
- *Sedentary lifestyle
- *Low HDL-C or high TG
- *Vascular disease
- *Severe obesity or acanthosis nigricans
- *High risk ethnic group (African-, Hispanic-, Native or Asian-Americans, Pacific Islanders)
- *Gestational DM or delivery of child > 9 lbs
- *Polycystic Ovarian Syndrome

Screen yearly if IFG or IGT.
Screen every 3 years if results normal; consider more frequently if multiple risk factors.

Prediabetes

Represents high risk of future development of T2DM.
Diagnose by 2 (preferred repeat) tests:
-FPG between 100 - 126 mg/dl
-2-hr OGTT between 140-200 mg/dl
-A1C between 5.7 - 6.4%

Screen yearly for progression to T2DM (approximately 1/4th will progress).
Encourage 5 - 10% weight loss and at least 150 min/wk of moderate activity.
Consider metformin.
Manage CVD risk factors: HTN, HLD, tobacco use.

Maturity Onset Diabetes of Youth (**MODY**) is an autosomal dominant disorder, presenting with mild T2DM at a younger age.

Latent Autoimmune Diabetes of the Adult (**LADA**) is a slow onset form of type 1 DM which occurs in middle-aged adults.

T2DM: Diagnosis

Diagnose by 2 (preferred repeat) tests:
-FPG ≥ 126 mg/dl
-2-hr OGTT ≥ 200 mg/dl
-A1C $\geq 6.5\%$

Diagnose by 1 test (RBS > 200) with signs and symptoms consistent with DM.

At time of diagnosis:
-Evaluate for micro-and macrovascular risks
-Medication reconciliation
-H&P
-Dilated eye exam
-Albuminuria, serum creatinine and eGFR
-Fasting Lipid[^]
-LFTs[^]
-TSH [^](women > 50 YO and those with hyperlipidemia)
[^]If not available within last year

T2DM Management Goals

The overall goals are to minimize the symptoms of hyperglycemia and to prevent the long term sequela.

Goals need to be individualized based on personal preference, length of disease and other risk factors. A1C:

- $< 6.5\%$ younger, newly diagnosed, without CVD
- $< 7.0\%$ "average" patient
- $< 8.0\%$ may be appropriate for patient with severe hypoglycemia, limited life expectancy, and extensive comorbidities

All patients should receive self-management education and support, medical nutritional therapy counseling and exercise counseling. These messages should be reinforced frequently. Patients should be encouraged achieve a 5 - 10% weight loss and at least 150 min/wk of moderate activity.

T2DM: Management Hyperglycemia

Diet, exercise and education are the foundation of all therapies.

Repeat A1C q3 mo until stable, then q6 mo.

SMBG may be beneficial in newly diagnosed patients, and is beneficial in patients on insulin.

Metformin, if not contraindicated, is the preferred initial pharmaceutical agent.

If presenting A1C >9% or patient symptomatic from hyperglycemia, consider insulin therapy (either alone or combination).

If A1C not controlled with adequate dosage of metformin, consider dual therapy.

If A1C not adequately controlled with adequate dosage of dual therapy, consider addition and titration of insulin (basal-bolus) or triple therapy (but cost becomes concern).

At each decision point, evaluate for barriers to care and evaluate for hypoglycemia and medication side effects and concerns.

T2DM: Management of CV Risks

HTN

Check BP each visit. Goal is <140/80. <130/80 may be appropriate for younger patient or patient with concern about stroke risk.

Treatment should be individualized to comorbidities and ethnicity. Combination therapy is common, especially if BP > 150/100.

Give one or more medications at bedtime.

HLD

In patient with known CVD, initiate statin regardless of baseline LDL-C; goal < 70mg/dl.

In patient >40 YO with risk factors for CVD (family history early CVD, HTN, smoking, dyslipidemia or albuminuria), institute statin regardless of baseline LDL-C goal < 100 mg/dl.

In patient < 40 YO with risk factors CVD, consider statin if LDL-C>100 mg/dl and failed conservative therapy.

AACE recommends combination therapy may be beneficial, whereas ADA does not routinely recommend it.

T2DM: Management of CV Risks, cont.

Aspirin

In non-allergic patient, without high risk of bleeding: (clopidogrel if allergic)

-Low-dose aspirin is recommended if known CVD of CV risk > 10% [men > 50 or women > 60 with family history of CVD, HTN, smoking, dyslipidemia or albuminuria].

-Low-dose aspirin is individualized if risk is between 5 - 10%.

Smoking

Ask about usage at each visit. If using, discuss willingness to quit and strategies to use, including goal setting, education, barriers, pharmaceuticals, others.

Obesity

Record weight and calculate BMI each visit. If overweight, discuss willingness to lose and strategies to use, including goal setting, education, barriers, pharmaceuticals, others.

T2DM: Management of Other Risks

Nephropathy

Annual measurement of serum creatinine and spot albumin and calculate eGFR and UACR.

Retinopathy

Annual dilated eye exam, unless other recommendation by eye specialist.

Neuropathy

Annual screening for DPN with foot exam with pinprick, vibration, monofilament pressure sensation, and assessment ankle reflexes.

Refer patient to podiatrist if DPN or PAD in smoker or if previous foot complications

Depression

Screen for depression with standard tool. May manifest with loss of DM control.

Other

Sleep apnea, fatty liver, and increased cancer risk

Immunizations

Yearly influenza; pneumococcus; hepatitis B in 19 - 59 YO; other routine immunization recommendations by CDC (Td and zoster).