Guideline for Type 2 Diabetes

Intended for any age.

Prevention

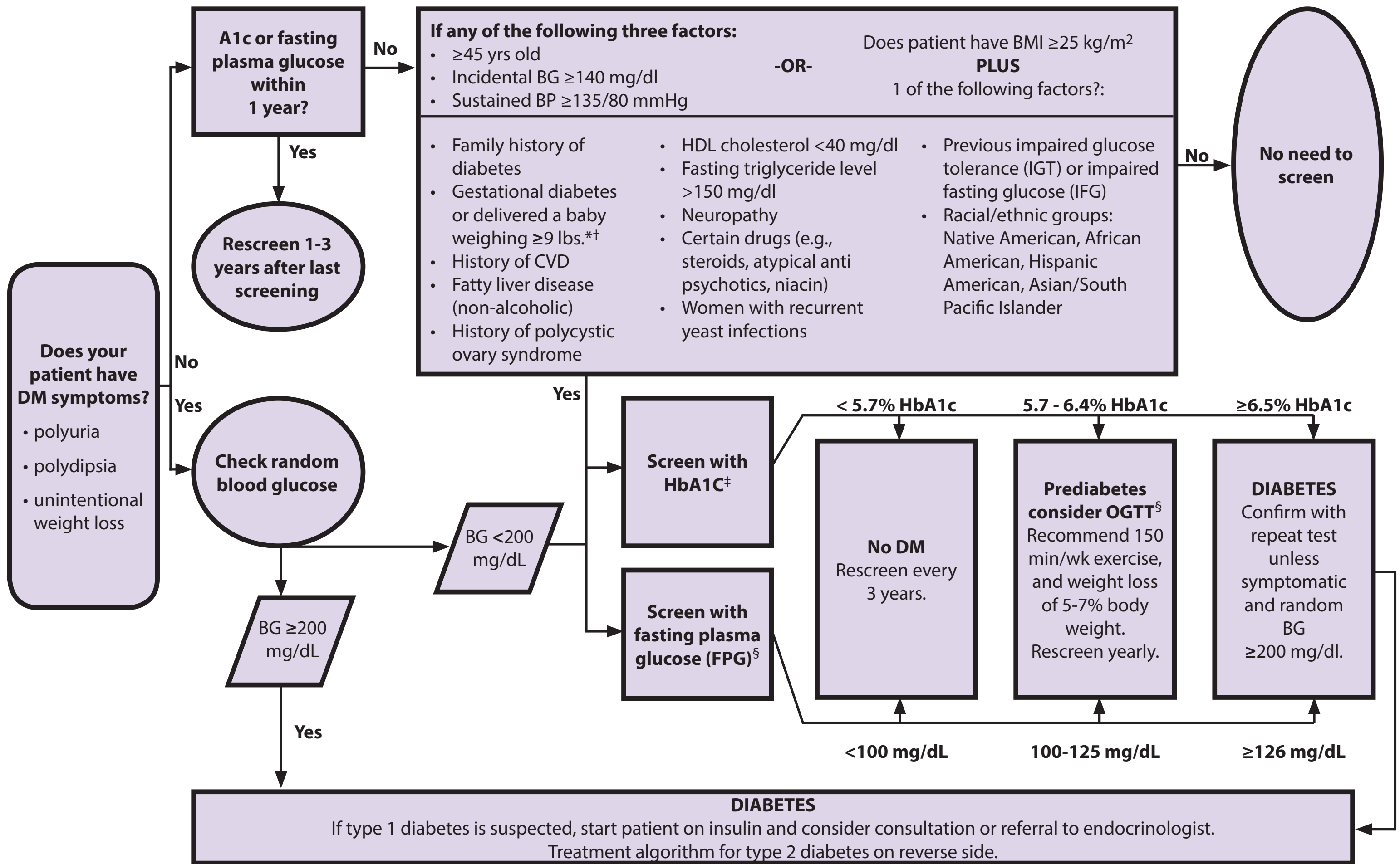
Help your patients prevent or delay onset of type 2 diabetes mellitus (DM) by encouraging:

- A healthy diet
- An active lifestyle with a minimum of 150 minutes of physical activity per week
- Maintenance of a healthy weight (BMI = 18.5-24.9 kg/m²)
- A reduction in body weight of at least 5-7% for overweight (BMI ≥25-29.9 kg/m²) or obese (BMI ≥30 kg/m²) patients

Lowering A1c by only 1% can reduce the risk of eye, kidney, and nerve damage by 40%.

- Centers for Disease Control and Prevention

Screening Methods



Prevention of Diabetes Complications

MEDICATIONS / IMMUNIZATIONS	FREQUENCY	GOAL / COMMENTS
Aspirin (if benefit outweighs risk)	Initially/Ongoing	*Women*: age 55-79 or with CVD. May use low dose of 81 mg/day.
		Men: >45 years old or with CVD. May use low dose of 81 mg/day.
ACE inhibitor (ARB if ACE-I intolerant)	Initially/Ongoing	Individuals with hypertension, microalbuminuria or CVD.
Statin	Initially/Ongoing	Use if not at lipid goal (LDL goal: <100 mg/dL). In all patients >40 years old, consider statin regardless of LDL if baseline total cholesterol ≥135 mg/dL.
Influenza vaccination	Annually	Per CDC recommendations at www.cdc.gov/flu
Pneumococcal vaccination	At least once	Once; revaccinate if ≥65 years old, AND first shot at <65 years AND first shot ≥5 years ago.
Hepatitis B	Once (series)	Age 19-59 as soon as possible after diagnosis. Age ≥60 clinician discretion after assessing risk and likelihood of adequate immune response to vaccination.

* See HealthTeamWorks guidelines at www.healthteamworks.org.
† Gestational diabetes: Within 12 weeks of delivery, if patient had gestational diabetes she should be screened with an oral glucose tolerance test (OGTT).
‡ Should not screen with A1c if patient has known hemoglobin trait or increased RBC turnover (hemolytic anemia, chronic malaria, major recent blood loss, blood transfusions).
§ Additional screening with an OGTT or a post-prandial glucose should be considered for individuals with A1c=6.0-6.4%. Blood glucose ≥140 mg/dL would be abnormal, and ≥200 mg/dL would indicate diabetes. Confirm diagnosis with FPG or A1c.

This guideline is designed to assist clinicians in diabetes screening and management. It is not intended to replace a clinician's judgment or establish a protocol for all patients.
For national recommendations, references and additional copies of the guideline, go to www.healthteamworks.org or call (303) 446-7200. This guideline was supported with funds from The Colorado Health Foundation.
Approved February 2012.

Clinical Assessment

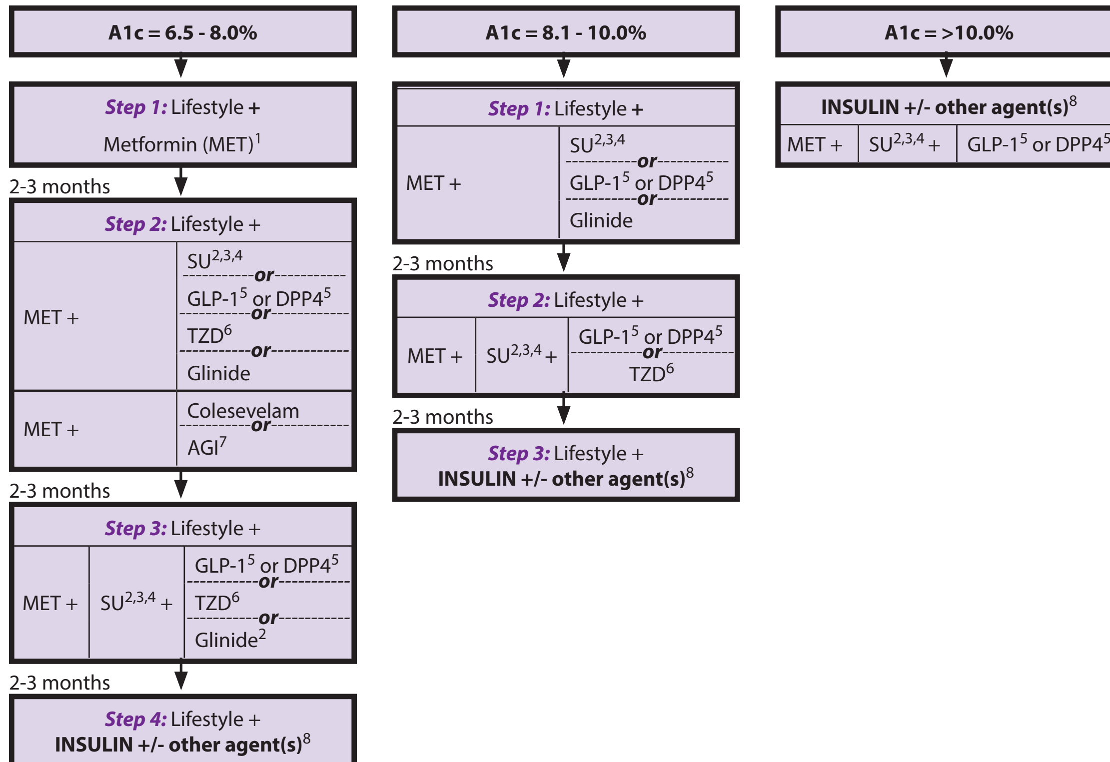
Diabetes-focused visit every 3-6 months or more often if needed.

	MONITORING	FREQUENCY	GOAL / COMMENTS
History	Assess medication adherence	Every visit	Have patient bring in all medications and do a medication reconciliation.
History	Glucose control/assess for hypoglycemia	Every visit	Ask about home glucose monitoring and instances of hypoglycemia or hyperglycemia.
History	Tobacco use	Every visit	Any tobacco use: Ask, advise, refer to QuitLine (1-800-QUIT-NOW).
History	Alcohol and drug use assessment*	At least annually	See HealthTeamWorks Alcohol and Substance Use Guideline.
History	Mental health*	As needed	Assess for depression, cognitive impairments for elderly, etc.
History	Physical activity and dietary habits*	Every visit	Assess physical activity and diet. If necessary, encourage positive changes in behavior.
Physical Exam	Body mass index (BMI: kg/m^2)*	Every visit	Normal = 18.5-24.9. Overweight = ≥25-29.9. Obese = ≥30. Use BMI percentile for children under 18 years old: Overweight = 85-94%ile, Obese ≥95%ile.
Physical Exam	Blood pressure	Every visit	Goal BP <130/80 mmHg. Higher goal may be appropriate in certain situations.
Physical Exam	Comprehensive lower-extremity exam	Annually	Inspect feet at every visit. Vascular (Ankle Brachial Index for those over age 65), musculoskeletal, neurological exam (w/ monofilament). Encourage patient self-management care daily (see patient education supplement). If abnormal, consider referral to foot care specialist.
Physical Exam	Retinal	Annually	By ophthalmologist, optometrist or retinal photograph (read by trained, experienced clinician). Ask about vision changes.
Physical Exam	Oral health assessment	Every 6-12 months	Refer to dentist or dental hygenist.
Labs	A1c screening	Quarterly if not meeting treatment goals or q 6 months	General Goal: <7%. Lower goal may be beneficial if no significant risk of hypoglycemia and if appropriate for patient age, life expectancy and co-morbidities. Higher goal may be appropriate in certain situations (e.g., elderly and patients who are prone to hypoglycemia).
Labs	Fasting lipid profile	Annually	Goals: LDL <100 mg/dl, Optional Goal: LDL <70 mg/dl in patients with CVD. HDL: >40 mg/dl for men, >50 mg/dl for women. Triglycerides: <150 mg/dl.
Labs	Urine microalbumin	Annually	If >30 mg/dl creatinine, start ACE inhibitor (ARB if ACE-I intolerant). Continue to titrate ACE-I/ARB until blood pressure is ≤130/80 mmHg.
Labs	Serum creatinine	At least annually	Use to estimate Glomerular Filtration Rate (GFR). Consider referral to nephrologist if GFR <60 mL/min.
Counsel	Physical activity and diet or other self-management goals*	Every visit	Assess and set **S**pecific, **M**easurable, **A**ttainable, **R**ealistic and **T**ime-limited (SMART) goals. See HealthTeamWorks Patient Action Plan.
Counsel	Preconception counseling*	Every visit	Three-fold increased risk of birth defects, which may be reduced with good glycemic control prior to conception. Women with poor glycemic control should use effective birth control.

Treatment for Type 2 Diabetes: Glucose Management Algorithm

See HealthTeamWorks Medication Supplement for Insulin Titration Algorithm at www.healthteamworks.org.

Lifestyle includes: encouraging weight loss, decreased calories, decreased refined carbohydrates and starches, and increased activity.



Glossary:

AGI: Alpha-Glucosidase inhibitors

DPP4: Dipeptidyl peptidase-4 inhibitor

GLP-1: Glucagon-like peptide-1

MET: Metformin

SU: Sulfonylureas

TZD: Thiazolidinediones

Footnotes:

1. If contraindicated, use SU, DPP4, GLP1, TZD or AGI.
2. Glinide if increased post-prandial glucose excursion or SU if increased FPG.
3. Low-dose secretagogue recommended.
4. If A1c <8.5%, combination Rx with agents that cause hypoglycemia should be used with caution.
5. Decrease secretagogue by 50% when added to GLP-1 or DPP-4.
6. TZD-pioglitizone. Refer to black box warning on Medication Chart.
7. AGI if increased post-prandial glucose excursion.
8. a) Discontinue insulin secretagogue with multidose insulin.
   b) Can use pramlintide with prandial insulin.

* See HealthTeamWorks guidelines and tools at www.healthteamworks.org.