

Adult Diabetes Guidelines

Summary

Disclaimer

The Permanente Medical Group (TPMG) Clinical Practice Guidelines (and those developed with CMI) have been developed to assist clinicians by providing an analytical framework for the evaluation and treatment of selected common problems encountered in patients. These guidelines are not intended to establish a protocol for all patients with a particular condition. While the guidelines provide one approach to evaluating a problem, clinical conditions may vary significantly from individual to individual. Therefore, the clinician must exercise independent professional judgment and make decisions based upon the situation presented. While great care has been taken to assure the accuracy of the information presented, the reader is advised that TPMG cannot be responsible for continued currency of the information, for any errors or omissions in these guidelines, or for any consequences arising from their use.

2006 Adult Diabetes Guidelines Summary

I. Prevention of Diabetes

A. Intervention to Delay the Onset of Type 2 Diabetes

In patients with impaired glucose tolerance or impaired fasting glucose*, methods to promote healthy eating and increased physical activity, targeted to achieve a sustained weight loss (5-7%), delay the onset of diabetes and are strongly recommended as first line therapy.

If therapy goals are not achieved in a reasonable timeframe through lifestyle interventions alone, adding drug therapy with metformin is an option.

(Evidence-based: A)

*Included studies define impaired glucose tolerance as a glucose of 140-199 post 75g glucose load. (Evidence-based) The ADA defines Impaired Fasting Glucose as FPG levels ≥ 100 mg/dl (5.6 mmol/L) but < 126 mg/dl (7.0 mmol/L). (Consensus-based)

B. Post Partum Follow Up of Gestational Diabetes Mellitus to Prevent Future Progression to Type 2 Diabetes

In women with GDM, long term post partum follow up including weight control and lifestyle advice is recommended to prevent future progression to type 2 diabetes. Patients with GDM should be educated on their higher risk of developing type 2 diabetes after delivery.

(Consensus-based)

II. Screening

A. Candidates for Screening for Type 2 Diabetes

- Screening for type 2 diabetes in patients with hyperlipidemia (LDL > 130) and hypertension (blood pressure $\geq 140/90$ mmHg) is recommended regardless of age.
- There is insufficient evidence for screening patients with other risk factors**. Screening for these patients is optional.
- There is insufficient evidence to recommend an optimal screening interval. Regions are encouraged to set appropriate screening intervals.

(Consensus-based)

**Risk factors are defined as a family history of type 2 diabetes in first- and second-degree relatives; belonging to a certain racial/ethnic group (Native Americans, African-Americans, Hispanic Americans, Asians/South Pacific Islanders); or BMI ≥ 25 kg/m²; or having signs of insulin resistance or conditions associated with insulin resistance (acanthosis nigricans, polycystic ovary syndrome)

B. Test to Screen for Impaired Glucose Tolerance

If a test for impaired glucose control is desired, a Fasting Plasma Glucose is the recommended test. HbA1c should not be used as a routine screening test.

(Consensus-based)

III. Pharmacological Management of Diabetes

A. Management of Hypertension in Patients with Diabetes

Threshold to initiate drug therapy in patients with diabetes and hypertension

Initiate antihypertensive therapy in patients with diabetes with a systolic blood pressure of ≥ 140 mmHg and/or diastolic ≥ 85 -90 mmHg.

If systolic BP is 130-139 or diastolic BP is 80-89 after 3 months of lifestyle therapy, initiation of drug therapy is recommended.

(Consensus-based)

When BP is more than 20/10 mmHg to 30/10 mmHg above goal, initiating therapy with two drugs, either as a separate prescription or in fixed dose combinations is recommended.

Note: For patients with diabetes and hypertension, the target blood pressure should be $\leq 130/80$ mmHg.

(Consensus-based)

Initial treatment of diabetes and hypertension

The Guidelines Workgroup recommends either a thiazide type diuretic or an ACE

Inhibitor as the preferred first line drug for the treatment of diabetes and hypertension in the absence of heart failure, known coronary heart disease or microalbuminuria.

Combination therapy of HCTZ/ACE Inhibitors as first line therapy is an option.

(Consensus-based)

Step therapy in the treatment of diabetes and hypertension

- For 2 drugs: When a 2nd drug is required for hypertension control, it should be either an ACE-I or a diuretic.
- For 3 Drugs: If blood pressure is not controlled on a thiazide-type diuretic in addition to an ACE-I, then treatment with a thiazide-type diuretic, an ACE-I AND a beta-blocker are recommended.

(Consensus-based)

Drug therapy for patients with diabetes, hypertension, and microalbuminuria or diabetic nephropathy

If a person with diabetes, hypertension, and microalbuminuria (or albuminuria) is intolerant to an ACE Inhibitor, then, in the absence of contraindications, it is recommended that an ARB be substituted to prevent progression of renal disease.

(Consensus-based)

Target blood pressure for people with diabetes and hypertension

For patients with diabetes and hypertension, the target blood pressure should be $\leq 130/80$ mmHg. (Evidence-based: A: diastolic blood pressure; Consensus-based: systolic blood pressure)

B. Drug Therapy for Microalbuminuria in Normotensive Patients

ACE Inhibitors should be used in normotensive patients with diabetes and microalbuminuria (or albuminuria).

If a person is intolerant to an ACE Inhibitor, then, in the absence of contraindications, it is recommended that an ARB be substituted to prevent progression of renal disease.

(Evidence-based: A: ACE Inhibitors for microalbuminuria in normotensive patients; Consensus-based: substitution of ARB if ACE Inhibitor intolerant)

C. Lipid Management in Patients with Diabetes

Statin therapy: Age ≥ 40 years to 80 years

- Statin Therapy is recommended for all patients aged 40 to 80 years with diabetes and $TC \geq 135$, regardless of baseline LDL-C. (Evidence-based: A)
- Initiate statin therapy with simvastatin 40 mg daily.* (Consensus-based)
- Clinical judgment is advised when considering lipid-lowering medications in people with diabetes who are at very low 10-year CAD risk ($< 7-10\%$ as determined from the “10-Year CAD Risk (%) and Recommendations for Dyslipidemia Drug Treatment” tables or no history of CVD and less than 2 cardiovascular risk factors**) (Consensus-based)

Statin therapy: Age < 40 years

In patients with diabetes under age 40 who have no known CAD and who have 2 or more CV risk factors**, treat with lipid lowering drug therapy. Alternatively, use the “10-Year CAD Risk (%) and Recommendations for Dyslipidemia Drug Treatment” tables to identify candidates for treatment with lipid-lowering drug therapy.

(Consensus-based)

For patients under age 40 with diabetes and established CAD, treatment with a statin is recommended.

(Consensus-based)

Statin therapy: Age >80 years

For patients over age 80 with diabetes and no established CAD, while statins are generally recommended, shared decision making is also recommended.

(Consensus-based)

For patients over age 80 with diabetes and established atherosclerosis, treatment with a statin is recommended.

(Consensus-based)

*lower doses recommended for patients at high risk for rhabdomyolysis

**total chol>200 mg/dl, HDL-cholesterol<40 mg/dl, hypertension, microalbuminuria, or current smoking

LDL Goals for Patients with Diabetes

The LDL target for patients age 40 or greater with diabetes is LDL<100 mg/dL.

For patients age 40 or older with diabetes AND CAD, an LDL target < 70 mg/dL is an option.

Note: In some people, an LDL <70-100 mg/dl may be difficult to achieve. In these cases, use clinical judgment to weigh the benefits and risks of intensifying drug therapy.

(Consensus-based)

D. Drug Therapy for the Primary and Secondary Prevention of Cardiovascular Disease (CVD) Events in Patients with Diabetes

ACE Inhibitor Therapy for Primary and Secondary Prevention of CVD in Diabetes

ACE Inhibitors should be prescribed to patients with diabetes age ≥ 55 years with one or more cardiovascular factors (Total chol >200 mg/dl, HDL-cholesterol <40 mg/dl, hypertension, microalbuminuria, or current smoking) or a history of CVD (CAD, stroke, or peripheral vascular disease).

(Evidence-based: B)

Aspirin Therapy in Diabetes for Prevention of CVD in Diabetes

Patients with diabetes ≥ 40 years old should be treated with at least 81 mg/day aspirin unless contraindicated.

People with aspirin allergy, bleeding tendency, recent gastrointestinal bleeding, age >85 and clinically active hepatic disease are not candidates for aspirin therapy.

(Consensus-based)

Beta Blocker Therapy for Secondary Prevention of CVD in Diabetes

Beta blockers are recommended for patients with diabetes with a history of MI. Beta blockers are an option for secondary prevention of CVD without MI in patients with diabetes.

(Evidence-based: A: Beta blockers-history of MI; Consensus-based: Beta blockers-diabetes but no history of MI)

Multifactorial Interventions for Preventing CVD in Patients with Diabetes

Concurrent treatment of CV risk factors is recommended for the prevention of cardiovascular events in patients with type 2 diabetes.

(Consensus-based)

E. Management of Glucose

Intensive glucose control is recommended in patients with diabetes, if not contraindicated.

(Evidence-based: A)

Metformin is recommended as the first-line glucose lowering drug in overweight patients with type 2 diabetes.

(Evidence-based: B)

Following failure to achieve goals on monotherapy, more than one medication is recommended.

There is insufficient evidence to recommend an optimal medication combination for type 2 diabetes not controlled with a single agent.

(Consensus-based)

The optimal treatment goal for HbA1c is <7%.

The HbA1c goal should be individualized based on shared decision making after discussion of risks and benefits.

- Patients with comorbid diseases, frequent and/or severe hypoglycemic episodes, older adults, and patients with unusual conditions may need less stringent treatment goals.
- Conversely, more stringent goals are an option in individual patients.

(Consensus-based)

F. Monitoring Microalbumin in Patients on ACE Inhibitors with Documented Microalbuminuria

Continued monitoring of microalbumin is optional in people with diabetes and established microalbuminuria, who are on an ACE Inhibitor or ARB.

(Consensus-based)

G. Screening for Retinopathy

Diabetes patients with background retinopathy or more severe disease should be monitored at least annually, and those without retinopathy should be screened every 1-2 years.

(Consensus-based)

H. Foot Screening

Patients with diabetes should have a foot screening that includes a monofilament test. Patients with an abnormal monofilament test are at high risk for lower limb complications. (Consensus-based)

Annual foot screening is recommended for patients with diabetes. (Consensus-based)

IV. Self Management

A. Diabetes Self Management Education

Patient training in self-care behaviors is recommended as a component of any diabetes management program. (Evidence-based: A: effect on glucose control; Consensus-based: effect on other outcomes)

B. Self Monitoring of Blood Glucose (Type 1 and Type 2 Diabetes)

Self monitoring of blood glucose is recommended for patients with type 1 diabetes and type 2 diabetes. When SMBG is used, results should be accompanied by an appropriate adjustment in therapy.

(Evidence-based: A: Type 1 Diabetes; Consensus-based: Type 2 Diabetes)