Michigan Quality Improvement Consortium Guideline
Management of Diabetes Mellitus

The following guideline applies to patients with type 1 and type 2 diabetes mellitus. It recommends specific interventions for periodic medical assessment, laboratory tests and education to guide effective patient self-management.

Eligible Population	Key Components	Recommendation and Level of Evidence	Frequency
Patients 18-75 years of age with type 1 or type 2 diabetes mellitus	Periodic assessment	Height, weight, BMI, blood pressure **[A]** Cardiovascular risks (tobacco use, hypertension, dyslipidemia, sedentary lifestyle, obesity, stress, family history, age > 40) Barriers to lifestyle and medication adherence Comprehensive foot exam (inspection, monofilament, and pulses) **[B]** Psychosocial evaluation and screen for depression **[D]** Dilated eye exam by ophthalmologist or optometrist **[B]**, or if no prior retinopathy, may screen with fundal photography **[B]**	Perform periodic assessment at least annually Record BP at every visit In the absence of retinopathy repeat retinal eye exam in 2 years
	Laboratory tests	HbA1c every 3-6 months based on individualized therapeutic goal **[D]** Urine microalbumin measurement **[B],** test annually Serum creatinine and calculated GFR **[D],** test annually Lipid profile for estimating initial risk and assessing adherence to therapy **[B]**, preferably fasting Consider TSH testing in patients with type 1 diabetes mellitus and LFTs **[D]**	

	Education, counseling and risk factor modification	Comprehensive diabetes self-management education and support (DSME and DSMS) from a collaborative team or diabetic educator if available
		Education should be individualized, based on the National Standards for DSME[1]**[B]** and include:
		    Importance of regular physical activity including interrupting sedentary periods at least every 90 minutes with physical activity, and a healthy diet **[A],** and working towards an appropriate BMI
		    Assessment of patient knowledge, attitudes, self-management skills and health status; strategies for making health behavior changes and addressing psychosocial concerns **[C]**
		    Description of diabetes disease process and treatment; safe and effective use of medications; prevention, detection and treatment of acute and chronic complications, including prevention, recognition, and treatment of hypoglycemia
		    Role of self-monitoring of blood glucose in glycemic control **[A]**
		    Cardiovascular risk reduction
		    Tobacco cessation intervention[2] **[B]** and secondhand smoke avoidance **[C]**
		    Self-care of feet including nail and skin care and appropriate footwear **[B]**; preconception counseling **[D]**; encourage patients patients to receive dental care **[D]**
			At diagnosis and as needed

	Medical recommendations	**Care should focus on tobacco cessation, hypertension, lipids and glycemic control:** Medications for tobacco dependence unless contraindicated Treatment of hypertension using up to 3-4 anti-hypertensive medications to achieve adult target of < 140/90 mmHg **[A]** (see *MQIC hypertension guideline).* Mortality increases if diastolic is treated to levels < 70 **[C]** Prescription of ACE inhibitor or angiotensin receptor blocker in patients with chronic kidney disease or albuminuria **[A]**[3] Moderate intensity statin[4,5] therapy for persons ≥ 40 years without overt CVD or adults ≥ 50 with CVD risk factor(s), for primary prevention against macrovascular complications (e.g. simvastatin 20-40 mg, atorvastatin 10-20 mg) High intensity statin (e.g. atorvastatin 40-80 mg) for patients with overt CVD Anti-platelet therapy **[A]**: low dose aspirin, unless contraindicated, for adults with cardiovascular disease. **Individualize the A1c goal**[6]. Goal for most patients is 7-8%. Mortality increases when A1c is > 9% **[B]**. Assurance of appropriate immunization status [Tdap or Td, influenza, pneumococcal vaccine (PPSV23), Hep B] **[C]**	At each visit until therapeutic goals are achieved

[1]National Standards for Diabetes Self-Management Education and Support

[2]There is no evidence that e-cigarettes are a healthier alternative to smoking or that e-cigarettes can facilitate smoking cessation

[3]Consider referral of patients with serum creatinine value > 2.0 mg/dl (adult value) or persistent albuminuria to nephrologist for evaluation

[4]Diabetes Care, January 2016: Cardiovascular Disease and Risk Management

[5]2013 ACC/AHA Blood Cholesterol Guideline Table 5. High-, Moderate-, and Low-Intensity Statin Therapy

[6]Diabetes Care, Volume 39, Supplement 1, January 2016, S43, Table 5.2 (Tight control is risky in certain patients)

Levels of evidence for the most significant recommendations: A = randomized controlled trials; B = controlled trials, no randomization; C = observational studies; D = opinion of expert panel
This guideline lists core management steps. It is based on the American Diabetes Association Standards of Medical Care in Diabetes - 2016; Volume 39, Supplement 1, Pages S1-S112. Individual patient considerations and advances in medical science may supersede or modify these recommendations.
Approved by MQIC Medical Directors June 2008, 2010, 2012, 2013, 2014, 2015, 2016   **MQIC.ORG**