Missouri Consensus Diabetes Management Guideline for Adults*

Diabetes care is a partnership between the person with diabetes, family members, and the diabetes team. This team may include, but is not limited to, the person with diabetes and/or caregiver/significant other, endocrinologist, primary care provider, diabetes educator, nurse, dietitian, pharmacist, and other specialists. Abnormal physical or lab findings should result in appropriate interventions. The *Missouri Consensus Diabetes Management Guideline for Adults* was developed to provide treatment guidance to primary care providers across the state and is not intended to replace or preclude clinical judgment. This guideline is a supplement to the standard general medical care provided to all adults with or without diabetes. Appendix A and B and implementation tools can be accessed via the Internet at http://www.dhss.mo.gov/diabetes/Guidelines.html or by calling 573-522-2861. REVISED: 4-1-2008

COMPONENT OF CARE	CARE/TEST	FREQUENCY
General Recommendations	✦ Perform diabetes focused visit[1] (see Appendix A).....	✦ Every 3-6 months or more often based on control and complications[1]
Cardiovascular	✦ Manage cardiovascular risk factors.[2].....	✦ At each visit until therapeutic goals are achieved[2]
	✦ Advise blood pressure <130/80 mmHg..... To achieve blood pressure targets, angiotensin converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARBs) should be used; a thiazide diuretic should be added to those with an eGFR ≥50 ml/min per 1.73 m^2 and a loop diuretic for those with an eGFR < 50 ml/min per 1.73 m^2.[2,3] Consider teratogencity potential in all women of childbearing age.[2,4] (see Appendix A)	✦ Follow-up and medication adjustment at monthly intervals until blood pressure goal is reached. Multiple drug therapy is generally required to reach blood pressure targets. Closely monitor kidney function and serum potassium with the use of ACE inhibitors, ARBs, and diuretics. After goal is reached and stable, follow-up at 3-6 month intervals.[3]
	✦ Check lipid profile..... Adult goals: • Triglycerides <150 mg/dL • High density lipoproteins (HDL) >40 mg/dL in men and >50 mg/dL in women should be considered • Low density lipoproteins (LDL) <100 mg/dL[5] (see Appendix A)	✦ At least annually and more often if needed to achieve goals[6]
	✦ Prescribe statins in persons who have one or more cardiovascular risk factors (both type 1 and type 2 diabetes). Consider teratogencity potential in all women of childbearing age[6] (see Appendix A).	
	✦ Prescribe low dose aspirin therapy (75-325 mg/day) in all adults ≥30 years of age with diabetes and one or more other cardiovascular risk factors, if not contraindicated. Persons with diabetes <21 years of age should not receive aspirin due to increased risk of Reye's syndrome.[6]	
Diabetes Self-Management Training (DSMT)	✦ Provide or refer for guided self-management/education services by a diabetes educator, preferably a certified diabetes educator (CDE), or someone board certified in advanced diabetes management (BCADM).[7] This should include but is not limited to cardiovascular risk reduction, tobacco use cessation, nutrition and lifestyle counseling, regular physical activity, foot care, glycemic control, medication, and preconception counseling.[8] (see Appendix A)	✦ At diagnosis; annually thereafter or at follow-up visits if appropriate[9]
Disability	✦ Refer to appropriate specialist, agency, or organization as needed.[10] (Disability is defined as an impairment that substantially limits one or more major life activities.) (see Appendix A)	✦ At each diabetes focused visit, assess for functional and activity limitations.
Eye Care	✦ Refer for a dilated retinal exam by an ophthalmologist or optometrist knowledgeable and experienced in diagnosing diabetic retinopathy.[11]	✦ Type 1: Annually beginning 3-5 years after onset Type 2: Annually beginning at diagnosis[11] (see Appendix A)
Family Planning	✦ Assess contraception/discuss family planning.[1,12].....	✦ At diagnosis and at each diabetes focused visit[1,12]
	✦ Provide preconception counseling[13] (see Appendix A).....	✦ At time of initial visit in all women of childbearing age[13]
Foot Care	✦ Inspect feet with shoes and socks off. Stress the need for daily self-exam and appropriate foot care.[14].....	✦ At each diabetes focused visit
	✦ Perform or refer for a comprehensive foot exam[14] (see Appendix A)...	✦ Annually
Glycemic Control	✦ Review self-monitoring blood glucose logs. Individualize management plan to encourage persons with diabetes to reach and maintain treatment goals.[15].....	✦ At each diabetes focused visit
	✦ Achieve glycated hemoglobin (A1C) goal for persons with diabetes… as close to normal (<6%) as possible without significant hypoglycemia. • American Diabetes Association <7%[15] • American Association of Clinical Endocrinologists ≤6.5%[16]	✦ 2-4 times annually based on individual's therapeutic goal. Develop or adjust the management plan to achieve normal or near-normal glycemia. Less stringent treatment goals may be appropriate for persons with diabetes and a history of severe hypoglycemia; persons with diabetes and limited life expectancies; and older adults with co-morbid conditions.[15]

*Adult is defined as a non-pregnant, individual 18 years of age or older.

Pre-diabetes and diabetes screening guidelines for adults and children can be found at: http://www.dhss.mo.gov/diabetes/Guidelines.html.

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Immunizations	✦ Provide flu vaccine.[2, 17] ✦ Provide pneumococcal vaccine.[2, 18]	✦ Annually; administer in the fall (October is optimal).[2, 17] ✦ Provide at least one lifetime pneumococcal vaccine for adults with diabetes. A one-time revaccination is recommended for individuals >65 previously immunized when they were <65 if the vaccine was administered more than 5 years ago.[2, 18]
Kidney Function	✦ Measure albumin/creatinine ratio using a random urine sample.[19] ✦ Check serum creatinine for the estimation of glomerular filtration rate (GFR) in all adults regardless of degree of urine albumin excretion.[20] Test as recommended above. (see Appendix A) ✦ If microalbuminuria or gross proteinuria is confirmed, treat type 1 diabetes with ACE inhibitor, treat type 2 diabetes with ACE inhibitor or ARB.[20] Consider teratogencity potential in all women of childbearing age.[2,4]	✦ Type 1: Annually beginning 5 years after onset; and earlier if gross proteinuria is present Type 2: Annually beginning at diagnosis[20] ✦ As above for diagnosis. Annually after diagnosis[20] ✦ Closely monitor kidney function and serum potassium with the use of ACE inhibitors, ARBs, and diuretics.
Medical Nutrition Therapy (MNT)	✦ Provide and/or refer for individual MNT to achieve treatment goals, preferably provided by a registered dietitian/CDE familiar with the components of diabetes MNT[15] (see Appendix A).	✦ At diagnosis, with follow-up as needed until initial goals are met, then at 6-month to 1-year intervals as needed
Medication Adherence	✦ Review purpose of medication (including complementary and alternative therapies); assess for accurate timing, dose frequency; and evaluate side effects.	✦ At each diabetes focused visit
Neuropathy	✦ Screen for distal symmetric polyneuropathy (DPN) using tests such as pinprick sensation, temperature, vibration perception (using 128-HZ tuning fork), 10-g monofilament pressure sensation at the dorsal surface of both great toes, just proximal to the nail bed, and ankle reflexes.[21] ✦ Assess cardiac autonomic neuropathy signs: resting tachycardia (>100 bpm), orthostasis (a fall in systolic blood pressure >20 mmHg upon standing), or other disturbances in autonomic nervous system function involving the skin, pupils, or gastrointestinal and genitourinary systems.[21]	✦ Annually[21] ✦ During history and review of systems[21]
Oral Health	✦ Evaluate dental symptoms/complaints and conduct visual examination of the mouth. Refer to dentist for treatment as appropriate.[1] (see Appendix A) ✦ Refer for dental exam by a general dentist or periodontal specialist to examine for periodontal disease (see Appendix A)	✦ At each diabetes focused visit ✦ Twice each year (every 6 months)[22]
Physical Activity	✦ Advise persons with diabetes regarding the benefits from an exercise program and assess for risks and benefits prior to engaging in moderate to strenuous exercise[23] (see Appendix A).	✦ At each diabetes focused visit
Pre-diabetes	✦ Counsel persons with pre-diabetes regarding measures to prevent diabetes (especially diet and exercise) and cardiovascular risk factors. These risk factors should be addressed and managed appropriately. Pre-diabetes is defined as: • Impaired glucose tolerance (IGT): Oral Glucose Tolerance Test (OGTT) 2 hours postload glucose 140-199 mg/dL • Impaired fasting glucose (IFG): Fasting Blood Glucose 100-125 mg/dL[24]	✦ See "State of Missouri Consensus Screening Guidelines for Pre-diabetes and Diabetes in a Medical Setting"[25] at http://www.dhss.mo.gov/diabetes/Guidelines.html.
Psychosocial Health	✦ Assess psychosocial health; screen for depression[26] and sexual health concerns ✦ Inquire about alcohol/recreational drugs	✦ At diagnosis, each diabetes focused visit, during hospitalizations, at discovery of complications, or at the discretion of the clinician[26] ✦ At diagnosis; annually thereafter
Social Support System	✦ Assess social barrier adherence in areas such as, but not limited to: literacy; family and community support; transportation problems; cultural competency; need for an interpreter; foreign language educational materials; insurance; and availability of food (see Appendix A).	✦ At diagnosis and as indicated
Tobacco Cessation	✦ Assess tobacco use in persons with diabetes. Ask and identify tobacco use. Advise of importance of quitting. Assess interest in quitting. Assist in quitting (e.g. pharmacologic therapy, referral, etc). Arrange for follow-up contact soon after quit date.[27]	✦ Tobacco user: Ask and advise at every visit. Non-tobacco user: Ask and advise at diagnosis and annually thereafter.[27]

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