

Goals of Medical Care for Adults and Children with Diabetes

An Overview of Self-Management Education

1. Lifestyle Review

A number of lifestyle behaviors and situations, including smoking, use of alcohol and street drugs, stress, depression, and unplanned pregnancies, can affect immediate and long-term outcomes of diabetes. Patients should be instructed regarding smoking cessation, effects and risks of alcohol and/or street drugs, and the effects and management of stress, depression. Women of childbearing age from adolescence to menopause must be adequately informed of pre-pregnancy planning with optimum control of blood glucose before and during pregnancy. This would include instruction regarding options for birth control.

2. Sick Day Management/Urine Ketone Testing

Patients need to know how to manage their diabetes during an episodic illness to prevent extreme hyperglycemia, and maintain hydration and nutrition. Patients with Type 1 diabetes should be instructed on how to prevent or detect ketoacidosis with frequent blood glucose monitoring and urine ketone testing. Some benefit from instruction on how to give additional insulin when blood glucose levels are increasing to prevent hospitalization and when it is appropriate to their care. All people with diabetes should be taught when to call their health care provider during an illness and when to go to the emergency department.

3. Medication Administration

Instruction includes the action and side effects of insulin and oral medications. The exact dosage and administration schedule should be written out clearly and provided as a resource for the patient. The administration schedule should be written out clearly and provided as a resource for the patient and tailored to the patient's daily work hours, school, exercise and meal schedule. Instruction in insulin administration includes accuracy in the technique of drawing up and injecting the dose, rotation of injection sites, rotation of injection areas (i.e., abdomen to thigh) and storage of insulin at home and away. Any use of insulin adjustment schedules should be carefully explained and written out for the patient. Patients should be taught to record the doses of both insulin and oral agents in the blood glucose record book.

4. Self-Blood Glucose monitoring

Blood glucose testing and recording of results give individuals an active role in their health care and encourage responsibility. Self-blood glucose monitoring is essential to management of diabetes and must be stressed as such. The monitoring system must be easy to use with as few steps as possible, easily portable, accurate and reliable. The number of times to test in a day varies depending on the treatment regimen. The patient who is treated with dietary changes and exercise can use blood glucose test results as immediate feedback regarding the effects of their efforts. Positive feedback can reinforce those efforts and increase self-motivation. Patients should be given goals for the blood glucose results in

writing. Recording of the results should be documented in a patient record book to enable the patient and the health care provider to look at trends, recognize successes and assess the effectiveness of the medication changes.

5. Hypoglycemia Treatment

Instruction about hypoglycemia includes recognition of symptoms, level of blood glucose, treatment and prevention. Symptoms of hypoglycemia vary between individuals and patients should use blood glucose testing to determine the actual meaning of symptoms. The plan for treatment should include options for the fast-acting sugar source and the follow-up snacks, what to carry with them and how to prevent hypoglycemia (i.e., regular meals and snacks, testing as often as needed, particularly before exercise or increase physical activity). Patients' family and friends should be taught the symptoms to look for and how to recognize when the person needs assistance. Patients on insulin need to have glucagon injections available and their families and friends should be taught to administer the drug when necessary.

6. Nutrition Management

A consultation with a dietitian is the most effective method of promoting good nutrition in the management of diabetes. Individualized nutrition recommendations and instruction must take into consideration lifestyle, ethnic differences, metabolic needs and metabolic control (lipids, blood glucose weight management). The nutrition plan must be integrated into the overall diabetes management plan through a multi-disciplinary approach. There are numerous strategies and teaching or education tools that can be used to implement the plan and achieve the glucose, lipid and nutrition goals. An individualized approach is recommended.

7. Foot Care

The goal of instructing a patient in daily foot care is the identification and prevention of foot problems that could lead to amputation. Most important is the daily inspection for problems and when to seek help from a health care professional. Other topics include appropriate footwear, management of minor foot problems, benefits of extra depth shoes, dangers of soaking feet, hot water bottles and heating pads. Additional information includes the avoidance of foot trauma and the need to stop smoking. Patients need to be instructed regarding the presence and degree of neuropathy and peripheral vascular disease that they have and the implications for foot care. They should be instructed to remove their shoes and stockings at each visit and to have their feet examined at each visit to their health care provider.

8. Physical Activity

Physical activity has a key role in the management of diabetes and must be integrated into the overall plan of care. Physical activity has important physiologic and metabolic benefits for people with both type 1 and type 2 diabetes. The improvements in cardiovascular fitness and psychological well being resulting from increased physical activity are important benefits as well. For persons with type 2 diabetes and insulin resistance, physical activity will increase sensitivity to insulin in these individuals. Teaching self-monitoring of blood glucose is essential for safety from hypoglycemia as well as a motivator for continuing the effort. Special attention is needed to design an exercise program that takes into consideration the person's special needs and the type of exercise that is practical for that individual. Prior to starting an exercise program, patients should have an assessment of cardiovascular risk and evaluation for previously undiagnosed hypertension, retinopathy, neuropathy, nephropathy and lower extremity pathology. A stress ECG is recommended for all individuals with type 2 diabetes more than 35 years of age and individuals with type 1 diabetes with duration of disease greater than 15 years. Patients should be taught how to

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recognize symptoms that indicate they should stop exercising and/or consult a health care provider.

Guidelines of Medical Care for Adult Patients with Diabetes (1)

These are guidelines to be adapted into the clinician's practice recommended by the Nebraska Diabetes Consensus Task Force.

Patient Name: _____ Date of Birth: ___/___/___ Year of Diagnosis: _____

Tobacco Use Status: Uses _____ Doesn't Use _____

Complications: _____

Pneumococcal Vaccination (7) _____ (Date Given) Height _____

*Frequency may be every **diabetes-related** visit - to be determined by physician

Attended diabetes self-management classes ___ Yes ___ No. If yes, When/Where: _____

Follow-up education with CDE/RD: Yes ___ No. If yes, When/Where: _____

Indicators	Frequency*	Goals (1)	Date/Results	Date/Results	Date/Results	Date/Results
Weight/BMI (2)		desirable				
Blood Pressure	every visit	<130/80 mm/Hg				
Foot Exam/pulses (3)	every visit					
Skin/injection sites	every visit					
Blood Sugar	every visit					
Review of Self-Blood Glucose Monitoring Record (80-120 mg/dl premeals & 100-140 mg/dl at bedtime)	every visit	Fill in Goal for this patient:				
Review/Update Current Meds	every visit					
Smoking Cessation if using	every visit					
Hemoglobin A1c -insulin treated	Quarterly	<1% above lab norm (e.g. norm <6.5% goal <7)				
-non-insulin treated	2-4 times a yr. or as needed					
Referred for Dental exam	bi-annual	Exam				
Annual Exam/History Update	Yearly					
Abdominal Exam	Yearly					
Neurological/Depression	Yearly					
Cardiac Assessment/pulses	Yearly					
Thyroid Assessment (5)	Yearly					
Referred for Dilated eye exam (6)	Yearly	Exam Date/ Physician:				
Total cholesterol (7)	Yearly	< 200 mg/dl				
HDL-C (7)	Yearly	>50 mg/dl females >40 mg/dl males				
Triglycerides (7)	Yearly	≤ 150 mg/dl				
Calculated or Measured LDL assessment (7, 8)	Yearly	< 100 mg/dl				
Morning spot urine for albumin/creatinine ratio or 24 hour urine for micro albumin (9)	Yearly	< 30 mg/24 hr or <30 ug/ml creatinine				
Influenza/ Pneumococcal (10) Vaccine	Yearly	Date/location:				
Other (i.e., consider aspirin use/Ace inhibitors, statins etc.)	Every visit	(81-325 mg ASA)				

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1. Based on American Diabetes Association: Standards of Medical Care for Patients With Diabetes Mellitus. Diabetes Care.
 2. Healthy BMI: 18.5-24.9; underweight BMI: less than 18.5; overweight BMI: 25.0-29.9; obese BMI: 30 or more.
 3. Annual comprehensive foot exam.
 4. AACE recommends < 6.5 %
 5. Thyroid function tests when indicated.
 6. Type 1 annually 5 years after onset and Type 2 annually both by ophthalmologist or optometrist experienced in management of diabetes retinopathy.
 7. Lipid profile, annually. If within normal limits the clinician may consider obtaining less frequently.
 8. National Cholesterol Education Program (NCEP) clinical practice guidelines recommend treating to <70 mg/dL. Adult treatment panel (ATP) III goal is <100 for high-risk patients and <70 for very high-risk patients.
 9. Five years after diagnosis, then annually at adolescence for Type 1, at diagnosis for Type 2.
 10. CDC Guidelines: once and repeat after 65 years of age if greater than 5 years after last vaccination. (MMWR Vol. 46 pg. 11).

SELF-MANAGEMENT EDUCATION – ADULT PATIENTS

	Date	Comments – Update Yearly For All
Lifestyle review: (smoking, alcohol, stress, birth control, pre-pregnancy counseling)		
Sick day management/ urine ketone testing		
Medication administration		
Self Blood glucose monitoring		80-120 mg/dl pre-meals 100-140 mg/dl at bedtime
Hypoglycemia treatment		
Nutrition management		
Physical activity management		
Foot care		

Guidelines of Medical Care for Pediatric Patients with Diabetes ⁽¹⁾

These are guidelines to be adapted into the clinician's practice recommended by the Nebraska Diabetes Consensus Task Force.

Patient Name: _____ Date of Birth: ___/___/___ Date of Diagnosis: _____

Complications: _____

Tobacco Use Status: Uses ___ Doesn't Use ___

Pneumococcal Vaccine (8) _____ (Date Given) *Frequency may be every diabetes-related visit - to be determined by physician

Indicators	Frequency*	Goals (1)	Date/Results	Date/Results	Date/Results	Date/Results
Height	every visit					
Weight or BMI percentage	every visit					
Tanner Stage	yearly					
Blood Pressure	every visit	Age specific guidelines				
Foot exam/pulses (2)	every visit					
Skin/injection sites	every visit					
Blood Sugar	every visit					
Review of Self Blood Glucose Monitoring (3)	every visit	Age specific guidelines				
Review/Update Current medications	every visit					
Smoking cessation if still using	every visit					
Hemoglobin A1c	every three months	Minimum goal is <7 %				
Referred for Dental exam	bi-annual	Exam Date/Dentist:				
Annual Exam/History Update	yearly					
Abdominal Exam	yearly					
Neurological Exam	yearly					
Cardiac assessment/pulses	yearly					
Thyroid assessment (4)	yearly					
Referred for Dilated eye exam (5)	yearly	Exam Date/Physician:				
Total Cholesterol (6)	initially	≤ 170 mg/dl				
HDL-C (6)	yearly					
Triglycerides (6)	yearly					
Calculated or Measured LDL assessment (6)	yearly	≤ 100 mg/dl				
Morning spot urine for albumin/creatinine ratio or timed urine collection for micro albumin (7)	yearly	30ug/ml creatinine < 30 mg/24 hr albumin				
Influenza / Pneumococcal (8) Vaccine	yearly	Date/location given:				

- Based on American Diabetes Association: Standards of Medical Care for Patients With Diabetes Mellitus.
- Annual comprehensive foot exam
- NCEP Daytime: <5 yrs. 100-200; > 5 yrs. 70-150 or as determined by physician; Nighttime < 5 yrs 150-200; > 5 yrs 120-180 or as determined by the physician.
- Thyroid function tests annually with type 1; type 2, at time of diagnosis and as indicated.
- Type 1, annually 5 years after onset and type 2, annually by ophthalmologist or optometrist experienced in management of diabetes retinopathy.
- Perform a fasting lipid panel on all children >2 yrs at the time of diagnosis (after glucose control established; if values are within normal levels and family history is not a concern, follow-up at 5 year intervals thereafter.
- Annual screening once child is 10 years of age. 8. CDC Guidelines.

	Date	Comments - Update Yearly For All
Lifestyle review: (smoking, alcohol, stress, depression, street drugs, birth control, pre-pregnancy counseling)		
Sick day management/ urine ketone testing		
Medication administration		
Self blood glucose monitoring		80-180 mg/dl pre-meals; ≤ 200 mg/dl at bedtime
Hypoglycemia treatment		
Nutrition management		
Physical activity management		
Foot Care		
Formal Self-management Diabetes Education		