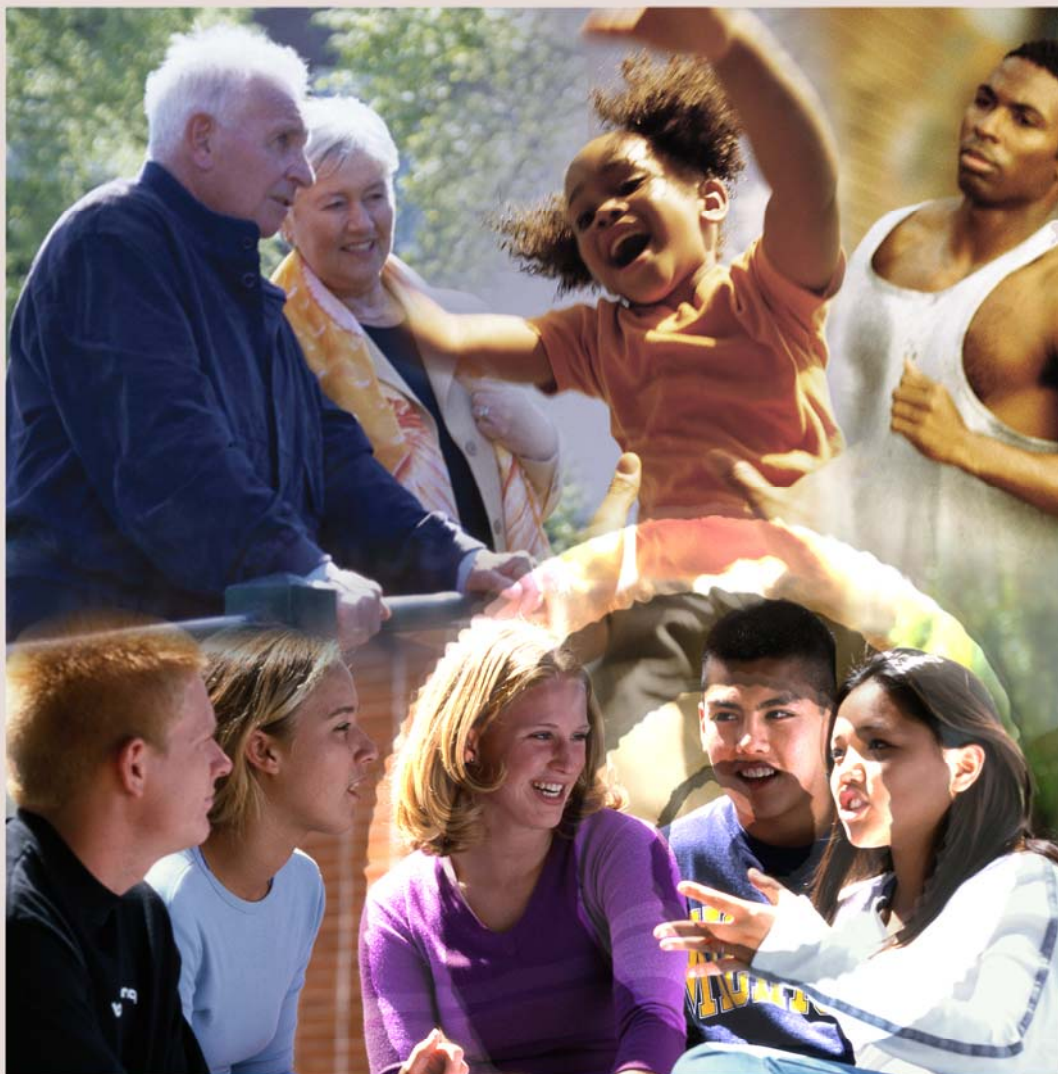


Wisconsin Diabetes Mellitus Essential Care Guidelines 2008



Tools and Resources Included

Developed by the Wisconsin Diabetes Advisory Group

TABLE OF CONTENTS

ACKNOWLEDGMENTS	V
INTRODUCTION	XI
DISCLAIMER	XIV
WISCONSIN DIABETES MELLITUS ESSENTIAL CARE GUIDELINES 2008 (ONE-PAGE)	XV
SECTION 1: GENERAL RECOMMENDATIONS FOR CARE	1-1
PRACTICE PREVENTION PRESCRIPTION TEMPLATE.....	1-12
BODY MASS INDEX (BMI) TABLE FOR ADULTS	1-13
GROWTH CHART: BOYS BODY MASS INDEX-FOR-AGE PERCENTILES, 2 TO 20 YEARS.....	1-14
GROWTH CHART: GIRLS BODY MASS INDEX-FOR-AGE PERCENTILES, 2 TO 20 YEARS.....	1-15
SECTION 2: SELF-MANAGEMENT EDUCATION	2-1
DIABETES SELF-MANAGEMENT BEHAVIOR GOALS WITH GRAPHICS	2-10
DIABETES SELF-MANAGEMENT BEHAVIOR GOALS WITHOUT GRAPHICS	2-11
AMERICAN DIABETES ASSOCIATION	2-12
RECOGNIZED DIABETES EDUCATION PROGRAMS IN WISCONSIN	2-12
COMPLEMENTARY PROGRAMS TO SUPPORT	2-13
SELF-MANAGEMENT FOR PEOPLE WITH DIABETES.....	2-13
DIABETES SELF-MANAGEMENT EDUCATION RECORD.....	2-14
DIABETES PATIENT FLOW SHEET/CHART AUDIT TOOL	2-16
SECTION 3: MEDICAL NUTRITION THERAPY	3-1
MEAL PLANNING WITH THE PLATE METHOD: LUNCH/DINNER – ENGLISH	3-12
MEAL PLANNING WITH THE PLATE METHOD: LUNCH/DINNER – SPANISH.....	3-13
SEVEN WAYS TO SIZE UP YOUR SERVINGS – ENGLISH	3-14
SEVEN WAYS TO SIZE UP YOUR SERVINGS – SPANISH.....	3-15
HOW TO USE A FOOD LABEL TO SELECT FOODS – ENGLISH	3-16
HOW TO USE A FOOD LABEL TO SELECT FOODS – SPANISH	3-17
SECTION 4: GLYCEMIC CONTROL	4-1
TYPE 2 DIABETES: GLYCEMIC CONTROL PATHWAY	4-17
MEDICATION UPDATE FOR DIABETES MELLITUS – 2008	4-18
INSULIN THERAPY 2008.....	4-20
DIABETES SICK DAYS PLAN	4-24
SECTION 5: CARDIOVASCULAR CARE	5-1
QUIT TOBACCO SERIES: MEDICATION CHART.....	5-16
LIPID MEDICATION UPDATE	5-17
A POCKET GUIDE TO BLOOD PRESSURE MEASUREMENT IN CHILDREN	5-18
RECOGNIZING AND TREATING HYPERTENSION: 2007 CLINICAL PRACTICE GUIDELINE FOR ADULTS > 18 YEARS OLD	5-20
SECTION 6: KIDNEY CARE	6-1
SCREENING AND INITIAL RECOMMENDATIONS FOR DIABETIC KIDNEY DISEASE.....	6-8
SECTION 7: EYE CARE	7-1
DILATED RETINAL EYE EXAM COMMUNICATION FORM.....	7-6
EYE DVD ORDER FORM.....	7-7

SECTION 8: NEUROPATHIES AND FOOT CARE.....	8-1
DIABETIC FOOT ULCERATION.....	8-12
DIABETIC FOOT INFECTION	8-13
CHARCOT FOOT	8-14
ANNUAL COMPREHENSIVE DIABETES FOOT EXAM FORM	8-15
DIABETIC FOOT SCREEN FOR LOSS OF PROTECTIVE SENSATION	8-16
SHOES AND SOCKS OFF POSTER – ENGLISH.....	8-17
SHOES AND SOCKS OFF POSTER – SPANISH	8-18
HIGH-RISK FEET STICKERS.....	8-19
SECTION 9: ORAL CARE.....	9-1
MEDICAL-DENTAL: TEAM REFERRAL FORM	9-8
DIABETES: SCREENING TOOL FOR INSPECTION OF GUMS AND TEETH	9-9
SECTION 10: EMOTIONAL AND SEXUAL HEALTH CARE.....	10-1
PATIENT HEALTH QUESTIONNAIRE (PHQ-9).....	10-10
PHQ-9 QUICK DEPRESSION ASSESSMENT – INSTRUCTIONS FOR USE	10-11
SECTION 11: INFLUENZA AND PNEUMOCOCCAL IMMUNIZATIONS.....	11-1
SECTION 12: PRECONCEPTION AND PREGNANCY CARE.....	12-1
IT’S NEVER TOO EARLY TO PREVENT DIABETES	12-14
SECTION 13: IDENTIFICATION AND DIAGNOSIS OF PRE-DIABETES AND TYPE 2 DIABETES... 13-1	
SCREENING ADULTS FOR PRE-DIABETES AND TYPE 2 DIABETES	13-13
50+ TIPS TO PREVENT TYPE 2 DIABETES	13-14

ACKNOWLEDGMENTS

The authors of these *Guidelines*, the Wisconsin Diabetes Advisory Group and other dedicated individuals, represent key organizations committed to improving diabetes care in Wisconsin. Many other individuals were also involved in the review and revision of various drafts. The Wisconsin Diabetes Prevention and Control Program wishes to thank them for their collaboration, expertise, and perseverance regarding this statewide project.

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INTRODUCTION

Diabetes is a serious and costly chronic illness that can be self-managed leading to optimal control. Diabetes affects nearly 420,000 adults in Wisconsin. That's nearly one of every 10 adults you meet. In addition, 6,000 children and adolescents in Wisconsin have diabetes according to the *2008 Burden of Diabetes in Wisconsin*.

Diabetes occurs when the body either does not produce enough insulin or doesn't properly use the insulin that the body makes. Insulin is needed to convert sugar in the food we eat into energy needed by every cell of the body. The symptoms of diabetes are often subtle and may go undetected. Uncontrolled high blood sugars can cause serious and life-altering medical complications. Types of diabetes are: Type 1 diabetes, Type 2 diabetes, gestational diabetes, and drug-induced diabetes. Another condition called pre-diabetes is often a precursor to Type 2 diabetes.

Approximately 5-10% of the population with diabetes is affected by Type 1 diabetes, generally diagnosed before the age of 30. With this type of diabetes, the pancreas produces little or no insulin, which the body needs to control the amount of sugar (glucose) in the blood. People with Type 1 diabetes must take insulin to live. There are no risk factors for Type 1 diabetes.

Type 2 diabetes is the most common type of diabetes, affecting 90-95% of those with the disease. With this type of diabetes, the body does not properly use the insulin that it makes. There are risk factors for Type 2 diabetes that cannot be changed: age, race, and family history. However, there are also risk factors for Type 2 diabetes that can be changed: inactivity, poor eating habits, overweight, and obesity. Pre-diabetes, or impaired glucose tolerance, is also a modifiable risk factor. People with pre-diabetes are at increased risk for heart disease and stroke. Research shows that people who increase physical activity, improve nutrition, and lose a small amount of weight may delay or prevent the onset of Type 2 diabetes.

Without optimal blood sugar control, people with diabetes are at increased risk of long-term and serious complications including blindness, kidney disease, foot and leg amputations, cardiovascular disease, stroke, and oral infections and diseases. There are proven, preventive clinical practice recommendations for both the health care team and the person with diabetes. Health care professionals and people with diabetes must work as a team to assure recommended care is obtained and treatment options optimized.

Despite clinical knowledge of the benefits of optimal glycemic control and preventive care, current studies show that many people with diabetes do not receive such care. This is due to a variety of attitudinal, educational, and systemic barriers. The adoption of the *Wisconsin Diabetes Mellitus Essential Care Guidelines (Guidelines)* provides one means of improving care and enhancing quality of life for people with diabetes. Quality improvement initiatives, such as utilization of the *Guidelines*, offer promising strategies to make dramatic improvements in overall health outcomes.

These *Guidelines*, originally published in 1998 and revised in 2001 and 2004, were again revised in 2008 to incorporate the latest scientific evidence regarding good diabetes care. The Wisconsin Diabetes Advisory Group and other health care professionals collaborated with the Wisconsin

Diabetes Prevention and Control Program staff to update the *Guidelines*. The target audience for the *Guidelines* includes primary care providers and many other health care professionals and health systems (e.g., managed care organizations, other insurers, clinics, purchasers, etc.). Based on clinical trials, accepted science, and expert opinions, the *Guidelines* provide a concise, general framework for the care of diabetes and prevention of diabetes-related complications in Wisconsin.

The following national and international studies were instrumental in shaping previous versions of the *Guidelines* and continue to shape the current *Guidelines* version for Wisconsin. Each is summarized below:

Diabetes Control and Complications Trial

In a 1993 landmark study, the Diabetes Control and Complications Trial (DCCT) demonstrated that optimal glycemic control in an intensively treated group delayed the onset of microvascular complications (i.e., retinopathy, nephropathy, and neuropathy) and slowed the progression of complications already present in people with Type 1 diabetes. The benefits of sustained lowering of blood glucose levels were seen for all people regardless of age, sex, duration of diabetes, or history of poor control. While this trial promoted optimal glycemic control to achieve desired results, reduction in risk was noted even when blood glucose was not reduced to normal levels. For each two percent decrease in A1c, there was a 50-75% reduction in complications. Furthermore, there was no threshold level of A1c for this effect. A follow-up study indicated that the reduction in risk for microvascular changes lasted for at least four years after the DCCT ended, despite increasing blood glucose levels. Although optimal glycemic control is not appropriate for all people, almost all people are candidates for better control. Any improvement in glycemic control may help decrease the risk of complications.

United Kingdom Prospective Diabetes Study

In 1998, the United Kingdom Prospective Diabetes Study (UKPDS) demonstrated that improved blood glucose control reduced the risk of microvascular complications in people with Type 2 diabetes. For every percentage point decrease in A1c there was a 35% reduction in the risk of these complications. Additional data from this study showed that treatment of high blood pressure also reduced microvascular complications, congestive heart failure, and cardiovascular accident risk. Of further importance in this study are the data indicating that nearly 50% of people at diagnosis had one or more complications of diabetes, demonstrating the need for early diagnosis and treatment of diabetes.

Diabetes Prevention Program

The Diabetes Prevention Program (DPP) was a large, randomized clinical trial designed to test whether lifestyle modifications or medications could prevent or delay the development of Type 2 diabetes in high risk individuals (i.e., those with fasting plasma glucose values > 95 mg/dL and impaired glucose tolerance). Participants were randomized into one of three intervention groups comparing: 1) intensive lifestyle changes consisting of diet and physical activity, 2) treatment with the oral diabetes drug metformin, 3) placebo (a control group that took placebo pills). The second and third groups also received standard information on diet and physical activity. The DPP was discontinued a year early (2001) because the data had clearly answered the main

research questions. The risk of developing diabetes was reduced by 58% in the lifestyle group and by 31% in the medication group, compared to those in the placebo group. This study, together with other smaller studies in China and Finland, demonstrated that Type 2 diabetes can be delayed or prevented in people at risk of Type 2 diabetes regardless of ethnic background. Benefit was markedly increased in people over the age of 60. The DPP proved that lifestyle intervention is extremely helpful in reducing the risk of developing Type 2 diabetes.

Quality Improvement

Quality improvement is important in assuring optimal care for people with diabetes. Implementing evidence-based guidelines such as the *Wisconsin Diabetes Mellitus Essential Care Guidelines* is an example of improving quality care for people with diabetes in a health system or organization. In addition, the *Guidelines* set a standard of care for which to measure an organization's quality improvement in care. Possible data sources to audit care in a patient population include medical records (paper or electronic), patient registries, administrative claims data, pharmacy records, lab records, or patient surveys.

There are many models and tools for improving diabetes care. Earlier versions of these *Guidelines* have included examples. Because this area is evolving continually, we suggest referring to these organizations for up-to-date information:

Associates in Process Improvement

Model for Improvement (Plan-Do-Study-Act [PDSA])

<http://www.apiweb.org>

Improving Chronic Illness Care

Helping the chronically ill through quality improvement and research (includes information on the Care Model [sometimes known as the Chronic Care Model])

<http://www.improvingchroniccare.org/>

Institute for Health Care Improvement

Learning Model and Care Model (sometimes known as the Chronic Care Model)

<http://www.ihc.org>

Public Health Infrastructure Resource Center

Continuous Quality Improvement Model and implementation tools including *The Public Health Memory Jogger II*

<http://www.phf.org/infrastructure/performance>

Periodic updates are made to these *Guidelines* and posted on the Wisconsin Diabetes Prevention and Control Program website:

<http://dhs.wisconsin.gov/health/diabetes/guidelines.htm>

DISCLAIMER

These *Guidelines* are designed to serve as a tool to support and influence health care provider decisions that promote and provide consistent, comprehensive, preventive care. With the goal of improving care system-wide, the *Guidelines* include recommended screening tests, lab tests, exams, medical checks, and essential education. This document is divided into 13 sections, each providing a quick guide of pertinent information and references. Helpful tools and resources are included at the end of each section to assist providers with integrating the *Guidelines* into everyday practice. The *Guidelines* are population-based and therefore intended to be appropriate for most people with diabetes, but not intended to define the optimal level of care that an individual person may need. Clinical judgment may indicate the need for adjustments appropriate to the needs of each particular person (e.g., age, medical condition, complications, individual glycemic control goal). These *Guidelines* are an evolving process and, as such, are reviewed periodically and revised to reflect advances in research and medical knowledge.

WISCONSIN DIABETES MELLITUS ESSENTIAL CARE GUIDELINES 2008 (ONE-PAGE)

For details and references for each specific area, as well as the disclaimer, please refer to the supporting documents and implementation tools in the full-text *Guidelines* available via the Internet at <http://dhs.wisconsin.gov/health/diabetes/guidelines.htm> or telephone: (608) 261-6855.

Concern	Care/Test	Frequency
General Recommendations for Care	<ul style="list-style-type: none"> ◆ Perform diabetes-focused visit ◆ Review management plan; assess barriers and goals..... ◆ Assess physical activity level..... ◆ Assess nutrition/weight/BMI/growth 	<p><i>Type 1:</i> Every 3 months ❖</p> <p><i>Type 2:</i> Every 3 – 6 months ❖</p> <p>Each focused visit; revise as needed</p> <p>Each focused visit</p> <p>Each focused visit</p>
Self-Management Education	<ul style="list-style-type: none"> ◆ Refer to diabetes educator, preferably a CDE in an ADA Recognized Program; curriculum to include the ten key areas of the national standards 	At diagnosis, then every 6 – 12 months, or more as needed
Medical Nutrition Therapy	<ul style="list-style-type: none"> ◆ Refer for medical nutrition therapy (MNT) provided by a registered dietitian (RD), preferably one who is also a CDE..... 	At diagnosis or first referral to RD: 3 to 4 visits, completed in 3 to 6 months; then, annually. RD determines additional visits based needs/goals.
Glycemic Control	<ul style="list-style-type: none"> ◆ Check A1c; goal: < 7.0% (always individualize)..... (ADA recognizes goal of < 7.0%) (AACE recognizes goal of ≤ 6.5%) ◆ Review goals, medications, side effects, and frequency of hypoglycemia..... ◆ Assess self-blood glucose monitoring schedule 	<p><i>Type 1:</i> Every 3 months ❖</p> <p><i>Type 2:</i> Every 3 – 6 months ❖</p> <p>Each focused visit</p> <p>Each focused visit, 2 – 4 times/day, or as recommended</p>
Cardiovascular Care	<ul style="list-style-type: none"> ◆ Check fasting lipid profile..... Adult goals: Total Cholesterol < 200 mg/dL Triglycerides < 150 mg/dL HDL ≥ 40 mg/dL (men) HDL ≥ 50 mg/dL (women) Non-HDL (Cholesterol) < 130 mg/dL LDL < 100 mg/dL (optimal goal) LDL < 70 mg/dL (for very high risk) ◆ Start statin with ongoing lifestyle changes ◆ Check blood pressure..... Adult goal: < 130/80 mmHg ◆ Assess smoking/tobacco use status ◆ Start aspirin prophylaxis (unless contraindicated)..... 	<p><i>Children:</i> After age 2 but before age 10. Repeat annually if abnormal, repeat in 3 – 5 years if normal.</p> <p><i>Adults:</i> Annually. If abnormal, follow NCEP III guidelines.</p> <p>Adults with CVD; Age > 40 yrs with one or more risk factors for CVD</p> <p><i>Children:</i> Each focused visit; follow National High Blood Pressure Education Program recommendations for Children and Adolescents</p> <p><i>Adults:</i> Each focused visit</p> <p>Each visit; (5As: Ask, Advise, Assess, Assist, Arrange)</p> <p>Age > 40 yrs with diabetes; Age ≤ 40 yrs, individualize based on risk</p>
Kidney Care	<ul style="list-style-type: none"> ◆ Check albumin/creatinine ratio using a random urine sample, also called urine microalbumin/creatinine ratio ◆ Check serum creatinine and estimated GFR ◆ Perform routine urinalysis..... 	<p><i>Type 1:</i> At puberty or after 5 years duration, then annually</p> <p><i>Type 2:</i> At diagnosis, then annually</p> <p>At diagnosis, then annually</p> <p>At diagnosis, then as indicated</p>
Eye Care	<ul style="list-style-type: none"> ◆ Dilated eye exam by an ophthalmologist or optometrist 	<p><i>Type 1:</i> If age ≥ 10 yrs, within 3 – 5 years of onset, then annually</p> <p><i>Type 2:</i> At diagnosis, then annually; two exceptions exist</p>
Neuropathies and Foot Care	<ul style="list-style-type: none"> ◆ Assess/screen for neuropathy (autonomic/DPN) ◆ Visual inspection of feet with shoes and socks off..... ◆ Perform comprehensive lower extremity/foot exam (use monofilament and tuning fork) ◆ Screen for PVD (consider ABI) 	<p><i>Type 1:</i> Five years after diagnosis, then annually</p> <p><i>Type 2:</i> At diagnosis, then annually</p> <p>Each focused visit; stress daily self-exam</p> <p>At diagnosis, then annually</p> <p>At diagnosis, then annually</p>
Oral Care	<ul style="list-style-type: none"> ◆ Inspect gums and teeth for signs of periodontal disease ◆ Dental exam by general dentist or periodontal specialist..... 	<p>At diagnosis, then each focused visit</p> <p>At diagnosis, then every 6 months (if dentate) or every 12 months (if edentate)</p>
Emotional/Sexual Health Care	<ul style="list-style-type: none"> ◆ Assess emotional health; screen for depression..... ◆ Assess sexual health concerns 	<p>Each focused visit</p> <p>Each focused visit</p>
Immunizations	<ul style="list-style-type: none"> ◆ Provide influenza vaccine..... ◆ Provide pneumococcal vaccine..... 	<p>Annually, if age ≥ 6 months</p> <p>Once; then per Advisory Committee on Immunization Practices</p>
Preconception and Pregnancy Care	<ul style="list-style-type: none"> ◆ Provide preconception counseling/assessment ◆ Assess contraception/discuss family planning ◆ Assess risk for gestational diabetes mellitus (GDM)..... ◆ Screen for GDM..... ◆ Screen for Type 2 diabetes post-GDM..... 	<p>3 – 4 months prior to conception ◆</p> <p>At diagnosis and each focused visit ◆</p> <p>At first prenatal visit (if high risk, screen immediately for GDM) ◆</p> <p>At 24 – 28 weeks gestation or earlier if high risk ◆</p> <p>At 6 – 12 weeks postpartum, then annually</p>
Identification and Diagnosis of Pre-diabetes and Type 2 Diabetes	<ul style="list-style-type: none"> ◆ Perform fasting plasma glucose test or oral glucose tolerance test 	Test all adults ≥ age 45 yrs (see full <i>Guidelines</i> for testing of Type 2 diabetes in children and adolescents); if normal and person has no risk factors, retest in 3 years or less

❖ consider more often if A1c ≥ 7.0% and/or complications exist

◆ consider referring to provider experienced in care of women with diabetes during pregnancy

