

Prevent diabetes problems: Keep your diabetes under control



National Institute of
Diabetes and Digestive
and Kidney Diseases

National Diabetes Information
Clearinghouse

Prevent diabetes problems:

**Keep your diabetes
under control**

Contents

- What are diabetes problems? 1
- Will I have diabetes problems? 1
- What should my blood glucose numbers be? 2
- How can I find out what my average blood glucose is? 3
- What should my blood pressure be? 5
- What should my cholesterol be? 6
- What does smoking have to do with diabetes problems? 7
- What else can I do to prevent diabetes problems? 8
- Things to Check for Good Diabetes Care 9
- How to Use the Daily Diabetes Record Page 14
- Pronunciation Guide 19
- For More Information 20
- More in the Series 23
- Acknowledgments 24

What are diabetes problems?

Too much **glucose*** in the blood for a long time can cause diabetes problems. This high blood glucose, also called blood sugar, can damage many parts of the body, such as the heart, blood vessels, eyes, and kidneys. Heart and blood vessel disease can lead to heart attacks and strokes. You can do a lot to prevent or slow down diabetes problems.

Will I have diabetes problems?

Maybe. You may have one or more diabetes problems or none at all. If you get diabetes when you are young, you may not have diabetes problems for many years. If you find out you have diabetes as an adult, you may already have diabetes problems. Either way, keeping your blood glucose, blood pressure, and **cholesterol** under control can prevent diabetes problems.



*See page 19 for tips on how to say the words in **bold** type.

Be active to prevent diabetes problems.

What should my blood glucose numbers be?

Keeping your blood glucose on target can prevent or delay diabetes problems. The chart below shows target blood glucose levels for most people with diabetes.

Target Blood Glucose Levels for People with Diabetes	
Before meals	70 to 130
1 to 2 hours after the start of a meal	less than 180

Talk with your health care provider about what your blood glucose numbers should be and write them here:

My Target Blood Glucose Levels	
Before meals	_____ to _____
1 to 2 hours after the start of a meal	less than _____

Talk with your health care provider about when you need to check your blood glucose using a blood glucose meter. You will do the checks yourself. Your health care provider can teach you how to use your meter.

Keep track of your blood glucose checks using the record page in this booklet on pages 16 and 17. Make copies yourself or ask your health care provider for a blood glucose record book. Your blood glucose check results will help you and your health care provider make a plan for keeping your blood glucose under control. Always bring your record book to your doctor visits so you can talk about reaching your glucose goals.

How can I find out what my average blood glucose is?

Ask your health care provider for the **A1C** test. This blood test shows the average amount of glucose in your blood during the past 2 to 3 months. Have this test done at least twice a year. If your A1C result is not on target, your health care provider may do this test more often to see if your result is improving as your treatment changes. Your A1C result plus your blood glucose meter results can show whether your blood glucose is under control.

The A1C target for most people with diabetes is below 7 percent. Ask your health care provider if this target is right for you. Then write your A1C target here:

My A1C target is _____ percent.

If your A1C test result is on target, then your blood glucose is in a desirable range and your diabetes treatment plan is working. The lower your A1C is, the lower your chance of having health problems.

If your result is too high, you may need a change in your diabetes plan. Your health care team can help you decide what part of your plan to change. You may need to change your meal plan, your diabetes medicines, or your physical activity plan.

What Your A1C Result Means	
My A1C Result	My Average Blood Glucose
6%	135
7%	170
8%	205
9%	240
10%	275
11%	310
12%	345

What should my blood pressure be?

Normal blood pressure will help prevent damage to your eyes, kidneys, heart, and blood vessels. Blood pressure is written with two numbers separated by a slash. For example, 120/70 is said as “120 over 70.” The first number should be below 140 and the second number should be below 80, unless your doctor sets a different target for you. Keep your blood pressure as close to these numbers as you can. If you already have kidney disease, ask your doctor what numbers are best for you.

Meal planning, medicines, and physical activity can help you reach your blood pressure target.



Have your blood pressure checked at every visit.

What should my cholesterol be?

Normal cholesterol and blood fat levels will help prevent heart disease and stroke, the biggest health problems for people with diabetes. Keeping cholesterol levels under control can also help with blood flow. Have your blood fat levels checked at least once a year. Meal planning, physical activity, and medicines can help you reach your blood fat targets:

Target Blood Fat Levels for People with Diabetes	
Total cholesterol	below 200
LDL cholesterol	below 100
HDL cholesterol	above 40 (men) above 50 (women)
Triglycerides	below 150

What does smoking have to do with diabetes problems?

Smoking and diabetes are a dangerous combination. Smoking raises your risk for diabetes problems. If you quit smoking, you'll lower your risk for heart attack, stroke, nerve disease, and kidney disease. Your cholesterol and your blood pressure levels may improve. Your blood **circulation** will also improve.

If you smoke, ask your health care provider for help in quitting.



What else can I do to prevent diabetes problems?

You can do many things to prevent diabetes problems. For example, to keep your feet healthy, check them each day. Ask your health care team whether you should take a low-dose aspirin every day to lower your risk for heart disease. To keep your eyes healthy, visit an eye care professional once a year for a complete eye examination that includes using drops in your eyes to dilate the pupils.

Make sure your doctor checks your urine for protein every year. At least once a year, your blood **creatinine** level should be checked. Also once a year, your health care provider should do a complete foot exam. See page 10 for what you can do each day to stay healthy with diabetes. See pages 11 to 13 for other things for your health care provider to check for good diabetes care.



Check your feet each day to keep them healthy.

Things to Check for Good Diabetes Care

Taking care of diabetes is a team effort between you and your health care team—doctor, diabetes nurse educator, diabetes dietitian educator, pharmacist, and others. You are the most important member of the team.

Take charge of your diabetes by learning what to do for good diabetes care:

- things to do every day for good diabetes care (see page 10)
- things for your health care provider to look at every time you have a checkup (see pages 11 and 12)
- things for you or your health care provider to do at least once or twice a year (see pages 12 and 13)

Keep a daily record of blood glucose check results. Make copies of the Daily Diabetes Record on pages 16 and 17 in this booklet. This information will help you see whether you are reaching your blood glucose goals.

You can prevent or slow down diabetes problems by reaching your blood glucose, blood pressure, and cholesterol goals most of the time.

Things to Do Every Day for Good Diabetes Care



Follow the healthy eating plan that you and your doctor or dietitian have worked out.



Be active a total of 30 minutes most days. Ask your doctor what activities are best for you.



Take your medicines as directed.



Check your blood glucose every day. Each time you check your blood glucose, write the number in your record book.



Check your feet every day for cuts, blisters, sores, swelling, redness, or sore toenails.



Brush and floss your teeth every day.



Control your blood pressure and cholesterol.



Don't smoke.

Things for Your Health Care Provider to Look at Every Time You Have a Checkup

Your blood glucose records	<p>Show your records to your health care provider.</p> <hr/> <p>Tell your health care provider if you often have low blood glucose or high blood glucose.</p>
Your weight	<p>Talk with your health care provider about how much you should weigh.</p> <hr/> <p>Talk about ways to reach your goal that will work for you.</p>
Your blood pressure	<p>The goal for most people with diabetes is below 140/80.</p> <hr/> <p>Ask your health care provider about ways to reach your goal.</p>
Your medicines	<p>Talk with your health care provider about any problems you have had with your medicines.</p>
Your feet	<p>Ask your health care provider to check your feet for problems.</p>
Your physical activity plan	<p>Talk with your health care provider about what you do to stay active.</p>

Your meal plan	Talk about what you eat, how much you eat, and when you eat.
Your feelings	<p>Ask your health care provider about ways to handle stress.</p> <hr/> <p>If you are feeling sad or unable to cope with problems, ask about how to get help.</p>
Your smoking	If you smoke, talk with your health care provider about how you can quit.

Things for You or Your Health Care Provider to Do at Least Once or Twice a Year

A1C test	Have this blood test at least twice a year (see pages 3 and 4). Your result will tell you what your average blood glucose level was for the past 2 to 3 months.
-----------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------

Blood lipid (fats) lab tests	Get a blood test to check your <ul style="list-style-type: none"> • total cholesterol—aim for below 200 • LDL—aim for below 100 • HDL—men: aim for above 40; women: aim for above 50 • triglycerides—aim for below 150
These test results will help you plan how to prevent heart attack and stroke.	
Kidney function tests	Once a year, get a urine test to check for protein. At least once a year, get a blood test to check for creatinine. The results will tell you how well your kidneys are working.
Dilated eye exam	See an eye care professional once a year for a complete eye exam.
Dental exam	See your dentist twice a year for a cleaning and checkup.
Foot exam	Ask your health care provider to check your feet to make sure your foot nerves and your blood circulation are OK.
Flu shot	Get a flu shot each year.
Pneumonia vaccine	Get one; if you're over 64 and your shot was more than 5 years ago, get one more.

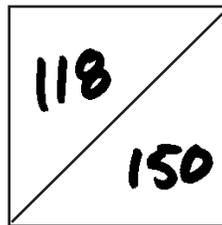
How to Use the Daily Diabetes Record Page

Use copies of the record page on pages 16 and 17 to keep track of blood glucose checks, medicines, and notes about things that affect your blood glucose. Make one copy of the record page for each week. This record will help you see whether your diabetes plan is working. Review your record with your health care provider.

Blood Glucose Checks

Talk with your health care provider and decide on the best times to check blood glucose. You may be checking blood glucose before meals, after meals, or at bedtime. Write when to check here:

If needed, draw a line in the boxes under “Breakfast,” “Lunch,” and “Dinner” to make room for blood glucose check results before and after a meal, like this example:



See page 2 for information about target blood glucose levels.

Medicines

Under the heading marked “Medicine,” write the names of your diabetes medicines and the amounts taken.

Notes

Write down things that affect your blood glucose level. Some examples are

- eating more or less than usual
- forgetting to take your diabetes medicine
- exercising—write down what kind and for how long
- being sick or upset about something—being under stress
- going to a social event or other special event, or being on vacation

Daily Diabetes Record*										Week Starting _____
	Other blood glucose	Breakfast blood glucose	Medicine	Lunch blood glucose	Medicine	Dinner blood glucose	Medicine	Bedtime blood glucose	Medicine	Notes: (Special events, sick days, exercise)
Monday										
Tuesday										
Wednesday										
Thursday										
Friday										
Saturday										
Sunday										

*Keep this copy clean. Make photocopies and write on the copies.

My Health Care Team Members

	Name and Address	Phone Number
Doctor		
Diabetes dietitian educator		
Diabetes nurse educator		
Eye care professional		
Dentist		
Foot doctor		
Pharmacist		
Counselor		

Pronunciation Guide

A1C (AY-WUHN-SEE)

cholesterol (koh-LESS-tur-ol)

circulation (SUR-kyoo-LAY-shuhn)

creatinine (kree-AT-ih-neen)

glucose (GLOO-kohss)

triglycerides (try-GLISS-ur-eyedz)

For More Information

Diabetes Teachers (nurses, dietitians, pharmacists, and other health professionals)

To find a diabetes teacher near you, call the American Association of Diabetes Educators toll-free at 1-800-338-3633, or look on the Internet at *www.diabeteseducator.org* and click on “Find a Diabetes Educator.”

Dietitians

To find a dietitian near you, contact the Academy of Nutrition and Dietetics at *www.eatright.org* and click on “Find a Registered Dietitian.”



To get more information about taking care of diabetes,
contact

National Diabetes Information Clearinghouse

1 Information Way

Bethesda, MD 20892–3560

Phone: 1–800–860–8747

TTY: 1–866–569–1162

Fax: 703–738–4929

Email: ndic@info.niddk.nih.gov

Internet: www.diabetes.niddk.nih.gov

National Diabetes Education Program

1 Diabetes Way

Bethesda, MD 20814–9692

Phone: 1–888–693–NDEP (1–888–693–6337)

TTY: 1–866–569–1162

Fax: 703–738–4929

Email: ndep@mail.nih.gov

Internet: www.ndep.nih.gov

www.yourdiabetesinfo.org

American Diabetes Association

1701 North Beauregard Street

Alexandria, VA 22311

Phone: 1-800-DIABETES (1-800-342-2383)

Email: askADA@diabetes.org

Internet: www.diabetes.org

JDRF

26 Broadway, 14th Floor

New York, NY 10004

Phone: 1-800-533-CURE (1-800-533-2873)

Fax: 212-785-9595

Email: info@jdrf.org

Internet: www.jdrf.org

More in the Series

The “Prevent Diabetes Problems” Series has seven booklets that can help you learn more about how to prevent diabetes problems.



For free single copies of these booklets, write, call, fax, or email the

National Diabetes Information Clearinghouse
1 Information Way
Bethesda, MD 20892-3560
Phone: 1-800-860-8747
TTY: 1-866-569-1162
Fax: 703-738-4929
Email: ndic@info.niddk.nih.gov

These booklets are also available at www.diabetes.niddk.nih.gov on the Internet.

Acknowledgments

Publications produced by the Clearinghouse are carefully reviewed by both NIDDK scientists and outside experts. The National Diabetes Information Clearinghouse thanks the people who helped review or field-test the original version of this publication:

For the American Association of Diabetes Educators

Lynn Grieger, R.D., C.D.E.
Arlington, VT
Celia Levesque, R.N., C.D.E.
Montgomery, AL
Teresa McMahon,
Pharm.D., C.D.E.
Seattle, WA
Barbara Schreiner, R.N.,
M.N., C.D.E.
Galveston, TX

For the American Diabetes Association

Phyllis Barrier, M.S., R.D.,
C.D.E.
Alexandria, VA
Linda Haas, Ph.C., R.N.,
C.D.E.
Seattle, WA
Kathleen Mahoney, M.S.N.,
R.N., C.D.E.
Drexel Hill, PA
Randi Kington, M.S., R.N.,
C.S., C.D.E.
Hartford, CT

For the Centers for Medicare & Medicaid Services

Baltimore, MD
Jan Drass, R.N., C.D.E.

For the Diabetes Research and Training Centers

Albert Einstein School
of Medicine
Norwalk Hospital
Norwalk, CT
Jill Ely, R.N., C.D.E.
Sam Engel, M.D.
Pam Howard, A.P.R.N.,
C.D.E.

Indiana University
School of Medicine
Indianapolis, IN
Madelyn Wheeler, M.S.,
R.D., F.A.D.A., C.D.E.

VA/JDF Diabetes
Research Center
Vanderbilt School of Medicine
Nashville, TN
Ok Chon Allison, M.S.N.,
R.N.C.S., A.N.P., C.D.E.
Barbara Backer, B.S.
James W. Pichert, Ph.D.
Alvin Powers, M.D.
Melissa E. Schweikhart
Michael B. Smith
Kathleen Wolffe, R.N.

For the Grady Health System Diabetes Clinic

Atlanta, GA
Ernestine Baker, R.N.,
F.N.P., C.D.E.
Kris Ernst, R.N., C.D.E.
Margaret Fowke, R.D., L.D.
Kay Mann, R.N., C.D.E.

For the Indian Health Service

Albuquerque, NM
Ruth Bear, R.D., C.D.E.
Dorinda Bradley, R.N.,
C.D.E.
Terry Fisher, R.N.
Lorraine Valdez, R.N., C.D.E.

Red Lake, MN
Charmaine Branchaud,
B.S.N., R.N., C.D.E.

For the Medlantic Research Center

Washington, DC
Resa Levetan, M.D.

For the Texas Diabetes Council

Texas Department of Health
Austin, TX
Luby Garza-Abijaoude,
M.S., R.D., L.D.

The NDIC also thanks Katherine R. Tuttle, M.D., F.A.S.N., F.A.C.P., of the Providence Medical Research Center, Sacred Heart Medical Center in Spokane, WA, and the University of Washington School of Medicine in Spokane and Seattle for reviewing the updated version of this publication.

National Diabetes Education Program

1 Diabetes Way

Bethesda, MD 20814–9692

Phone: 1–888–693–NDEP (1–888–693–6337)

TTY: 1–866–569–1162

Fax: 703–738–4929

Email: ndep@mail.nih.gov

Internet: www.ndep.nih.gov

www.yourdiabetesinfo.org

The National Diabetes Education Program is a federally funded program sponsored by the U.S. Department of Health and Human Services' National Institutes of Health and the Centers for Disease Control and Prevention and includes over 200 partners at the federal, state, and local levels, working together to reduce the morbidity and mortality associated with diabetes.

National Diabetes Information Clearinghouse

1 Information Way
Bethesda, MD 20892-3560
Phone: 1-800-860-8747
TTY: 1-866-569-1162
Fax: 703-738-4929
Email: ndic@info.niddk.nih.gov
Internet: www.diabetes.niddk.nih.gov

The National Diabetes Information Clearinghouse (NDIC) is a service of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The NIDDK is part of the National Institutes of Health of the U.S. Department of Health and Human Services. Established in 1978, the Clearinghouse provides information about diabetes to people with diabetes and to their families, health care professionals, and the public. The NDIC answers inquiries, develops and distributes publications, and works closely with professional and patient organizations and Government agencies to coordinate resources about diabetes.

This publication is not copyrighted. The Clearinghouse encourages users of this publication to duplicate and distribute as many copies as desired.

This publication is also available at www.diabetes.niddk.nih.gov.

This publication may contain information about medications and, when taken as prescribed, the conditions they treat. When prepared, this publication included the most current information available. For updates or for questions about any medications, contact the U.S. Food and Drug Administration toll-free at 1-888-INFO-FDA (1-888-463-6332) or visit www.fda.gov. Consult your health care provider for more information.



National Institute of
Diabetes and Digestive
and Kidney Diseases

NIH Publication 13-4349L

August 2013



The NIDDK prints on recycled paper with bio-based ink.