



## Prediabetes and Primary Prevention of Type 2 Diabetes

Prediabetes is a condition in which blood glucose levels are higher than normal but not in the diabetes range. PPOD and other health care providers can work with patients who are diagnosed as having prediabetes to help prevent them from progressing to additional health complications. Without intervention, people with prediabetes will progress to type 2 diabetes at a rate of 10% per year. Prediabetes also increases the risk of heart disease and stroke.<sup>1</sup>

Prediabetes is defined as impaired fasting glucose (IFG) of 100 to 125 mg/dl, impaired glucose tolerance (IGT) diagnosed by a post 75-gram glucose challenge (oral glucose tolerance test of >140 to <200 mg/dl or both IFG and IGT), or a hemoglobin A1C of 5.7–6.4%. The [Are You at Risk for Type 2 Diabetes?](#) test, from NDEP, can help patients and providers assess individual risk for prediabetes.

### Primary Prevention

Primary prevention refers to preventing diabetes from occurring. Secondary prevention refers to preventing complications in those who already have diabetes (e.g., prevention of neuropathy), and tertiary prevention refers to prevention of worsening complications (e.g., amputation resulting from injury to a neuropathic foot) or death.



## Trend Is Not Destiny

Progression to diabetes among those with prediabetes is not inevitable. Studies have shown that people with prediabetes who lose weight and increase their physical activity can prevent or delay diabetes and return their blood glucose levels to normal.

A major National Institutes of Health (NIH)-supported clinical trial—the Diabetes Prevention Program (DPP) study—provided scientific evidence that the onset of diabetes could be prevented or delayed in people at high risk. In the DPP, adults with prediabetes reduced their risk of developing diabetes during the course of the study by 58% through lifestyle changes such as:

- Reduced fat and calorie intake.
- Increased physical activity of at least 150 minutes/week (e.g., brisk walking 30 minutes a day, 5 days/week).
- Loss of at least 5% to 7% of body weight.

These lifestyle changes were effective in preventing or delaying diabetes in all ages and all ethnic groups in the DPP. Among people ages 60 years and older, progression to type 2 diabetes was reduced by 71%. The DPP showed that moderate changes resulting in modest weight loss can make a difference.

Interventions to prevent or delay type 2 diabetes in individuals with prediabetes can be feasible and cost-effective. Research has found that lifestyle interventions are more cost-effective than medications.<sup>1</sup> Further information on prediabetes, testing recommendations, and more can be found on the National Diabetes Education Program's (NDEP) [\*Small Steps. Big Rewards. Prevent Type 2 Diabetes\*](#) campaign site.

## The National Diabetes Prevention Program

[The National Diabetes Prevention Program](#) is a public-private partnership of community organizations, private insurers, employers, health care organizations, and government agencies. These partners are working to establish local evidence-based lifestyle change programs for people at high risk for type 2 diabetes. It is based on the DPP research study led by NIH and supported by the Centers for Disease Control and Prevention (CDC) and several translation studies.

There are four components of the National Diabetes Prevention Program:

**Training: Increase workforce**

Train the workforce that can implement the program cost-effectively.

**Recognition Program: Assure quality**

Implement a recognition program that will assure quality, lead to reimbursement, and allow CDC to develop a program registry.

**Intervention Sites: Deliver program**

Develop intervention sites that will build infrastructure and provide the program.

**Health Marketing: Support program uptake**

Increase referrals to and use of the prevention program.

Participants work with a lifestyle coach in a group setting to receive a 1-year lifestyle change program that includes 16 core sessions (usually 1 per week) and 6 post-core sessions (1 per month).

Partners of the [National Diabetes Prevention Program](#) include the Y (also known as YMCA of the USA) and United Health Group. These partner organizations were instrumental in starting up the national program and continue to expand the reach of evidence-based lifestyle programs. CDC is enthusiastic about the numerous organizations becoming involved in the National Diabetes Prevention Program.

Explore the National Diabetes Prevention Program site to learn more about prediabetes and how to prevent or delay type 2 diabetes.

## Patient Case Example

A 45-year-old African American woman brings in her mother for her annual comprehensive diabetes eye exam. The eye care provider asks the woman if she ever considered that she, too, has a family history of diabetes, which would place her at risk for developing type 2 diabetes.

The woman is surprised. “Me? I just never thought much about it. I’ve always been focused on Mama.”

The provider gives the woman the *Am I at Risk?* brochure and NDEP’s toll-free number and website URL and suggests she make a follow-up appointment with her own primary care provider.



## The Role of Pharmacy, Podiatry, Optometry, and Dentistry Providers in Primary Prevention

All health care providers can play a role in diabetes primary prevention and diabetes management. As a pharmacist, podiatrist, optometrist, dentist, or dental hygienist, you can make a difference in primary prevention because:

- You know your patients.
- Your patients trust you.
- A few words from you can go a long way.
- You can determine with just a few questions who is at high risk for diabetes (see risk factor list below).

### Do Your Patients Have Any of the Following Risk Factors?

- Family history of type 2 diabetes.
- Overweight or obesity.
- High blood pressure or cholesterol.
- African American, American Indian/Alaska Native, Asian American, Hispanic/Latino, or Native Hawaiian/Pacific Islander ethnicity.
- Prediabetes.
- Older than 45 years of age.
- History of gestational diabetes mellitus.

### Patient Case Example

A 50-year-old man, accompanied by his overweight teenage son, asks the pharmacist about weight loss pills. The teen seems embarrassed and unconvinced. He says, “What am I supposed to eat when the guys are all eating burgers and fries?”

The pharmacist agrees that changing eating habits is hard. He suggests that the son try eating smaller portions or choosing a plain burger instead of the oversized one with cheese. He also suggests the family visit NDEP’s website for tips on healthy eating and physical activity, and that they talk with a dietitian.

Dad agrees to play basketball with his son a couple of nights a week—good exercise for both of them.

## A Few Words Can Go a Long Way

You don't need to do it all—resources are available to help. Your patients will appreciate that you care about their overall health.

- Ask: “Has anyone ever told you that you are at risk for diabetes?”
- Advise: “You can take action to prevent or delay type 2 diabetes.”
- Assist: Give your patients resources to help them make healthy changes.
- Refer your patients to their primary care provider.

Use the [free primary prevention materials](#) available from NDEP online and at 1-888-693-NDEP (1-888-693-6337).

## Reference

1. Herman WH, Hoerger TJ, Brandle M, et al. The cost-effectiveness of lifestyle modification or metformin in preventing type 2 diabetes in adults with impaired glucose tolerance. *Ann Intern Med.* 2005 Mar 1;142(5):323–32.