

PRE-DIABETES

Anna Baker and Tamara Martin

CSU East Bay

RN-BSN

Spring 2016

—

Powerpoint Outline

- Types of Diabetes
 - Alarming Statistics
 - Complications and Risks
 - Interpreting Diagnostics
 - Prevention
-
- National Diabetes Prevention Program
 - Lifestyle Change Programs
 - How to help
 - Additional resources

Quick Review:

Diabetes is a disease in which the body either does not make or does not use insulin appropriately, causing increased levels of ~~g~~lucose in the blood, thereby starving the cells of their energy source.

Types of Diabetes

```
graph TD; A[Types of Diabetes] --> B[TYPE 1]; A --> C[TYPE 2]; A --> D[GDM];
```

TYPE 1

- Autoimmune disease
 - Body attacks pancreas
 - Beta cell destruction
 - Managed with insulin
-
- No cure nor prevention
 - Often seen in children and teens although can occur at any age
 - 5% of DM population

TYPE 2

- Commonly develops later in life (after age 35) although seen earlier now
- Pancreas produces insulin but it's not enough or not used correctly. Cells get resistant
- Can be managed with insulin, oral meds, lifestyle
- Majority of DM cases (90-95%)

GDM

- Gestational Diabetes Mellitus
- High blood glucose levels during second half of pregnancy
- Possibly due to increase in insulin-blocking hormones produced by placenta
- Increases r/o T2DM development (5-10%- after labor 35-60%-w/in 10-20 years)

Types of Diabetes



OTHERS

- Less than 5% of all cases
- Monogenic Diabetes Syndromes (mutation of single gene-inherited)
- Diseases of the exocrine pancreas e.g. Cystic Fibrosis
- Drug or chemical-induced diabetes
- Maturity Onset DM of the Young
- Latent Autoimmune DM in Adults

PRE-DIABETES

- blood glucose levels higher than normal but not high enough to be diagnosed with DM
- reversible with lifestyle
- increases r/o T2DM

The Focus: Pre-Diabetes

- No clear symptoms
- 86 million people in U.S. have PDM (1 in 3 adults)
- In CA alone, 55% adults have PDM or DM
- Of these people, 9 out of 10 (90%) don't know they have it
- — W/out intervention, 15-30% will develop T2DM w/in 5 yrs.
- DM currently 7th leading cause death in U.S.
- CA has greatest number of annual new cases (208,000) (from 1995-1997 to 2005-2007)
- Cost of DM is \$24.5 billion in CA alone; >174 billion in U.S.

Risk of Complications

Diabetes is a serious, lifelong disease which increases risks:

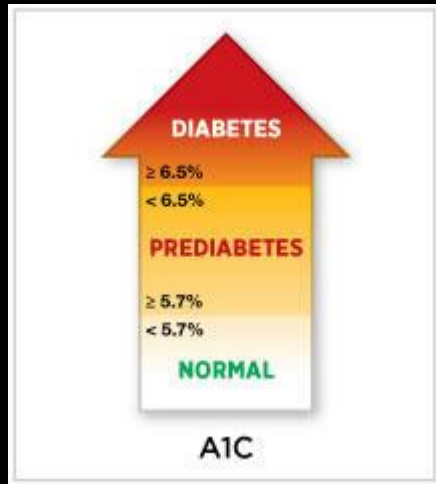
- Kidney Failure *
- Stroke *DM-leading cause of complication
- Cardiovascular disease
- Heart attack
- Blindness *
- Amputations of legs, feet, toes *
- Ulcers and wounds

Risk Factors for PDM

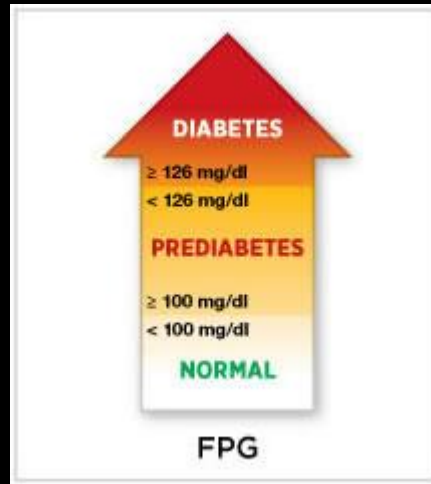
- \geq age 45
- Overweight or obese (BMI ≥ 25 , ≥ 23 for Asians)
- Family history of DM
- African American, Hispanic/Latino, American Indian, Asian American, or Pacific Islander
- HTN (or taking medications for HTN)
- Physically inactive
- Diagnosis of GDM
- Low HDL cholesterol (< 35 mg/dL) or high triglycerides (> 250 mg/dL)
- History of Polycystic Ovary Syndrome (PCOS) or CVD

Diagnostics for Pre-DM

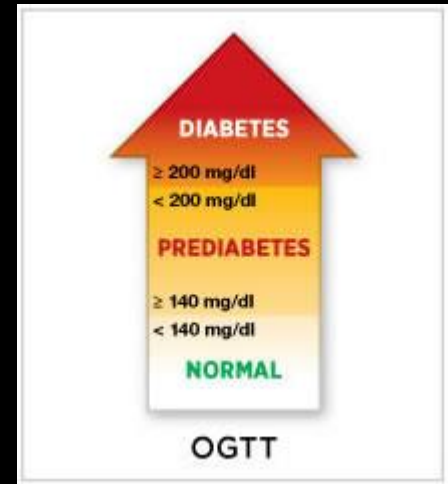
A1C: 5.7%-6.4%
(follows BG levels for
2-3 months-no fasting)



**Fasting Plasma
Glucose: 100-125 mg/dl**
(8 hours fast before test)



**Oral Glucose Tolerance Test
at 2 hours :140-199 mg/dl**
(BG before and 2 hrs post)



The Good News: Prevent and/or Delay

Pre-diabetes does NOT mean development of DM is inevitable

1. Decreasing body weight by 5-7% (10-15lbs for 200lb person)

2. ~~In~~ Incorporating 150 minutes/ week of moderate-intensity

activity (brisk walking for 30 minutes 5x/week)

Can cut chances of developing T2DM by 58% (71% for >age 60)

Or delay onset of T2DM

How?

The National Diabetes Prevention Program (NDPP) is a partnership of public and private organizations working to reduce prevalence of PDM and T2DM.

The organizations make it easier for people with prediabetes to participate in evidence-based, affordable, and high-quality lifestyle change programs to reduce their risk of type 2 diabetes and improve their overall health.

National DPP



Partners:

- Federal agencies
- State and local health departments
- National and community organizations
- ~~Employers~~
- Public and private insurers
- Health care professionals
- University community education programs
- Businesses that focus on wellness

Photo taken from <http://www.cdc.gov/diabetes/prevention/index.html>

National DPP

Goals:

- Deliver Centers for Diseases Control and Prevention (CDC)-recognized lifestyle change programs nationwide
- Ensure quality and adherence to proven standards
- Train community organizations that can run the lifestyle change program effectively
- Increase referrals to and participation in CDC-recognized lifestyle change programs
- Increase coverage by employers and public and private insurers

Lifestyle Change Programs

The key component of the NDPP is the Lifestyle Change Program:

- CDC-approved curriculum (lessons, handouts, resources)
- Lifestyle coaches, specially trained, to teach skills, motivate, and help set goals in an uplifting and supportive way
- Support groups- people working towards similar goals
- Online, in-person, or hybrid/combination programs
- 1 year long commitment (2 six-month long phases)

Lifestyle Change Programs- Phase One (first 6 months)

Education on:

- Healthy eating without giving up favorite foods (not a fad diet)
- Physical activity- find creative ways to incorporate daily activity
- Deal with stress
- Cope with challenges (e.g. how to eat in restaurants)
- Get back on track in the event of slip-ups

Lifestyle Change Programs- Phase One Topics (16)

- Welcome to Program
- Be a Fat and Calorie Detective
- 3 Ways to Eat Less Fat, Fewer Calories
- Healthy Eating
- Move those Muscles
- Being Active-A Way Of Life
- Tip the Calorie Balance
- Take Charge of What's Around You
- Problem Solving
- 4 Keys to Healthy Eating Out
- Talk Back to Negative Thoughts
- The Slippery Slope of Lifestyle Change
- Jump Start Your Activity Plan
- Make Social Cues Work For You
- You Can Manage Stress
- Ways to Stay Motivated

Lifestyle Change Programs- Phase Two (second 6 months)

Enhancing skills to maintain changes:

- Tracking food and physical activity
- Setting goals
- — Staying motivated
- Overcoming barriers
- Continuing education



Photo taken from
<http://www.cdc.gov/diabetes/prevention/index.html>

Lifestyle Change Programs- Phase Two Topics (14)

- Fats-Saturated, Unsaturated, Trans fat
- Food Preparation and Recipe Modification
- Healthy Eating-Taking it One Meal at a Time
- Healthy Eating with Variety and Balance
- More Volume, Fewer Calories
- Staying on Top of Physical Activity
- Stepping Up to Physical Activity
- Balance Your Thoughts for Long-Term Maintenance
- Handling Holidays, Vacations, Special Events
- Preventing Relapse
- Stress and Time Management
- Heart Health
- Closer Look at T2DM
- Looking Back and Looking Forward

Lifestyle Change Programs- Curricula

For more details about the CDC curricula for the programs:

<http://www.cdc.gov/diabetes/prevention/lifestyle-program/curriculum.html>

Handouts for participants and teaching guides for coaches,
In English and Spanish.

Lifestyle Change Programs- Structure

Program is one year:

1st 6 months: meet once/week for at least 16 sessions

Last 6 months: meet once or twice/month for at least 6 sessions

Programs are in-person, online, or combination of in-person and online. Offered in Spanish and English.

Take place at: health facilities, churches, community centers, etc.

Lifestyle Change Programs- Cost

- Average cost: \$400-500/year-long program
- Cost and insurance coverage depends on program location and insurance carrier.
- Payment plans and/or discounts may be available
- More insurances are adding as benefit
- Some employers are offering it as part of wellness programs
- Advocacy continues for public and private insurances to cover

Lifestyle Change Programs- Locations

- ~1163 in-person programs across U.S.
- ~91 in CA alone
- ~55 additional online and hybrid programs

—

- To find programs near you, use this link:

https://nccd.cdc.gov/DDT_DPRP/Programs.aspx

Lifestyle Change Programs in East Bay

- Pleasant Hill: YMCA
- Fremont: Palo Alto Medical Foundation
- Dublin: Palo Alto Medical Foundation

Others in Bay Area:

- Santa Rosa: YMCA
- San Francisco: 7 different YMCAs, Diabetes Prevention Education, SF General Hospital
- San Jose: Indian Health Center of Santa Clara Valley

How You Can Help **STAT**: **S**creen/**T**est/**A**ct **T**oday™

Providers must:

Prevent Diabetes **STAT**
Screen / Test / Act Today™

- Screen and Identify patients with prediabetes
- Refer them to a NDPP Lifestyle Change Program

The AMA and the CDC have prepared a TOOLKIT for providers.

<http://www.ama-assn.org/sub/prevent-diabetes-stat/toolkit.html>

Who to Refer- Eligibility Inclusion Criteria:

- Current age ≥ 18 years **and**
- Most recent BMI $\geq 24^*$ (≥ 22 if Asian) **and**
- A positive lab test result within previous 12 months:
 - HbA1C 5.7–6.4% (LOINC code 4548-4) **or**
 - $\overline{\text{FPG}}$ 100–125 mg/dL (LOINC code 1558-6) **or**
 - OGTT 140–199 mg/dL (LOINC code 62856-0) **or**
- History of gestational diabetes (ICD-9: V12.21; ICD-10: Z86.32)

Who (not) to Refer- Eligibility Exclusion Criteria:

- Current diagnosis of diabetes (ICD-9: 250.xx; ICD-10: E10.x, E11.x, E13.x and O24.x) or

—● Current Insulin use



DOWNLOAD THE
PREVENT DIABETES STAT TOOLKIT

Use the resources below to help your patients Prevent Diabetes STAT

DOWNLOAD A COMPLETE TOOLKIT

The STAT TOOLKIT

Provides 2 methods for screening and identifying patients:

1. During office visits- incorporate screening tools and diagnostic testing. Refer if applicable.

2. Generate lists of eligible patients from EHR using structured query with eligibility criteria and pursue if applicable. Repeat every 6-12 months.


The STAT TOOLKIT-Contents

- Step by step instructions for how to find and refer patients with prediabetes through both methods
- Includes algorithms
- Flow charts
- Patient flyers and handouts
- Referral information and forms
- ICD 10 codes for billing
- BMI charts
- Templates for letter and phone outreach

CDC Prediabetes Screening Test

<http://www.cdc.gov/diabetes/prevention/pdf/prediabetestest.pdf>

CDC Prediabetes Screening Test



COULD YOU HAVE PREDIABETES?
Prediabetes means your blood glucose (sugar) is higher than normal, but not yet diabetes. Diabetes is a serious disease that can cause heart attack, stroke, blindness, kidney failure, or loss of feet or legs. Type 2 diabetes can be delayed or prevented in people with prediabetes through effective lifestyle programs. Take the first step. Find out your risk for prediabetes.

TAKE THE TEST—KNOW YOUR SCORE!
Answer these seven simple questions. For each "Yes" answer, add the number of points listed. All "No" answers are 0 points.

Yes	No
1	0
1	0
1	0
5	0
5	0
5	0
5	0

Are you a woman who has had a baby weighing more than 9 pounds at birth?

Do you have a sister or brother with diabetes?

Do you have a parent with diabetes?

Find your height on the chart. Do you weigh as much as or more than the weight listed for your height?

Are you younger than 65 years of age and get little or no exercise in a typical day?


Are you between 45 and 64 years of age?

Are you 65 years of age or older?

Add your score and check the back of this page to see what it means.

Height	Weight (pounds)	Height	Weight (pounds)
4'10"	129	5'7"	172
4'11"	133	5'8"	177
5'0"	138	5'9"	182
5'1"	143	5'10"	188
5'2"	147	5'11"	193
5'3"	152	6'0"	199
5'4"	157	6'1"	204
5'5"	162	6'2"	210
5'6"	167	6'3"	216
		6'4"	221

Patient Risk Assessment Test

ARE YOU AT RISK FOR TYPE 2 DIABETES? 

Diabetes Risk Test

- How old are you?**
Less than 40 years (0 points)
40–49 years (1 point)
50–59 years (2 points)
60 years or older (3 points)
- Are you a man or a woman?**
Man (1 point) Woman (0 points)
- If you are a woman, have you ever been diagnosed with gestational diabetes?**
Yes (1 point) No (0 points)
- Do you have a mother, father, sister, or brother with diabetes?**
Yes (1 point) No (0 points)
- Have you ever been diagnosed with high blood pressure?**
Yes (1 point) No (0 points)
- Are you physically active?**
Yes (0 points) No (1 point)
- What is your weight status?**
(see chart at right)

Write your score in the box.

Height	Weight (lbs.)
4' 10"	119-142 143-180 191+
4' 11"	124-147 148-187 196+
5' 0"	128-152 153-203 204+
5' 1"	132-157 158-210 211+
5' 2"	136-163 164-217 218+
5' 3"	141-169 169-224 225+
5' 4"	146-175 174-231 232+
5' 5"	150-179 180-239 240+
5' 6"	155-186 186-246 247+
5' 7"	160-190 191-254 255+
5' 8"	164-196 197-261 262+
5' 9"	169-202 203-269 270+
5' 10"	174-208 209-277 278+
5' 11"	179-214 215-285 286+
6' 0"	184-220 221-293 294+
6' 1"	189-226 227-301 302+
6' 2"	194-232 233-310 311+
6' 3"	200-239 240-318 319+
6' 4"	205-245 246-327 328+


Add up your score.

If you scored 5 or higher:
You are at increased risk for having type 2 diabetes. However, only your doctor can tell for sure if you do have type 2 diabetes or prediabetes (a condition that precedes type 2 diabetes in which blood glucose levels are higher than normal). Talk to your doctor to see if additional testing is needed.

Type 2 diabetes is more common in African Americans, Hispanic/Latino, American Indians, and Asian Americans and Pacific Islanders.

For more information, visit us at www.diabetes.org or call 1-800-DIABETES

Visit us on Facebook
[facebook.com/AmericanDiabetesAssociation](https://www.facebook.com/AmericanDiabetesAssociation)



Lower Your Risk

The good news is that you can manage your risk for type 2 diabetes. Small steps make a big difference and can help you live a longer, healthier life.

If you are at high risk, your first step is to see your doctor to see if additional testing is needed.

Visit www.nid.nih.gov or call 1-800-DIABETES for information tips on getting started, and ideas for simple, one-step you can take to help lower your risk.

<https://download.ama-assn.org/resources/doc/prevent-diabetes-stat/x-pub/diabetes-risk-assessment.pdf>

Recommendation Form

http://www.cdc.gov/diabetes/prevention/pdf/t2/resources/HCP_Recommendation_Form.pdf

RECOMMENDATION FORM **PREVENT2**
A PROGRAM TO PREVENT OR DELAY TYPE 2 DIABETES

Approved by the National Diabetes Prevention Program

This is a recommendation for an adult patient to participate in the PreventT2 program. Make a copy and provide the completed form to the patient, who may contact his/her local program for more information and to enroll.

(First Name) (MI) (Last Name)

Is recommended for enrollment in the PreventT2 lifestyle change program based on the following eligibility criteria:

- ✓ 18 years or older
- ✓ BMI ≥ 34 kg/m² (≥ 22 if Asian)
- ✓ No previous diagnosis of type 1 or type 2 diabetes
- ✓ Diagnosis of prediabetes in the past year or GDM based on (check one or more)
 - HbA1C: 5.7%-6.4%
 - Fasting plasma glucose: 100-125 mg/dL
 - 2-hour plasma glucose (after a 75 gm glucose load): 140-199 mg/dL
 - Previous diagnosis of GDM (may be self-reported)

Health Care Provider Information

Signature: _____ Date: _____

Name: _____

Address: _____

Phone: _____

PreventT2 is part of the National Diabetes Prevention Program, led by the Centers for Disease Control and Prevention (CDC). It is a proven program to prevent or delay type 2 diabetes in high-risk patients.

For more information, contact your local PreventT2 program at:

Insert Local program name
Insert Program contact name
Insert Address 1
Insert Address 2
Insert Phone number
Insert Email address

Short Video for Patients

<https://youtu.be/8LGV8IMuMaI>

Video by Tamara and staff at Sutter Urgent Care



A Step Further: Offer a Program

Interested in offering a Lifestyle Program?

Follow link for details:

<http://www.cdc.gov/diabetes/prevention/lifestyle-program/index.html>

For More Information:

- Ad Council (2016). *Type 2 Diabetes Prevention*. Retrieved from <http://www.adcouncil.org/Our-Campaigns/Health/Type-2-Diabetes-Prevention>
- American Association of Diabetes Educators, (2016). *Diabetes Prevention Program*. Retrieved from <https://www.diabeteseducator.org/practice/diabetes-prevention-program>
- American Diabetes Association (2016). *Diabetes Professional Resources Online*. Retrieved from <http://professional.diabetes.org/?loc=bb-dorg>
- American Medical Association (2016). *STAT TOOLKIT*. Retrieved from <https://download.ama-assn.org/resources/doc/prevent-diabetes-stat/x-pub/diabetes-risk-assessment.pdf>

For More Information:

- American Medical Association (2015). *Preventing Diabetes STAT*. Retrieved from <http://www.ama-assn.org/sub/prevent-diabetes-stat/index.html>
- California Department of Public Health, Chronic Disease Control Branch (2014). *Burden of Diabetes*. Retrieved from https://www.cdph.ca.gov/programs/cdcb/Documents/Diabetes%20%20burden%20report%202014_9-04-14MNR3.pdf
- Centers for Disease Control and Prevention (2016). *CDC Prediabetes Screening Test*. Retrieved from <http://www.cdc.gov/diabetes/prevention/pdf/prediabetestest.pdf>

For More Information:

- Centers for Disease Control and Prevention (2016). *National Diabetes Prevention Program*. Retrieved from <http://www.cdc.gov/diabetes/prevention/index.html>
- Diabetes Coalition of California (2016). *Guidelines, Professional Resources, Patient Resources, About Us*. Retrieved from <http://diabetescoalitionofcalifornia.org/>
- National Association of Chronic Disease Directors, (n.d.). *Preventing Type 2 Diabetes: Home*. Retrieved from http://www.chronicdisease.org/?NDPP_home
- National Institutes of Health, (2008). *Diabetes Prevention Program* (Publication No. 09–5099). Retrieved from http://www.niddk.nih.gov/about-niddk/research-areas/diabetes/diabetes-prevention-program-dpp/Documents/DPP_508.pdf

The End.
Thank You for Joining Us!

Please fill out an evaluation
—
form before leaving.