Preventing & Managing Diabetes Through Community Resources

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Ohio Department of Health
Overview

• Prediabetes/Diabetes Overview
• Ohio Prediabetes/Diabetes Trends
• Cost Burden of Prediabetes in Ohio
• Community Resources Available for Impact
Prediabetes/Diabetes Overview
# Prediabetes- Definitions

<table>
<thead>
<tr>
<th>Blood Glucose</th>
<th>Form of energy that comes from the food we eat (sugar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prediabetes</td>
<td>Having blood glucose levels that are higher than normal, but not high enough to be diagnosed as diabetes</td>
</tr>
</tbody>
</table>

### Blood Test Levels for Diagnosis of Diabetes and Prediabetes

<table>
<thead>
<tr>
<th>A1C (percent)</th>
<th>Fasting Plasma Glucose (mg/dL)</th>
<th>Oral Glucose Tolerance Test (mg/dL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>6.5 or above</td>
<td>126 or above</td>
</tr>
<tr>
<td>Prediabetes</td>
<td>5.7 to 6.4</td>
<td>100 to 125</td>
</tr>
<tr>
<td>Normal</td>
<td>About 5</td>
<td>99 or below</td>
</tr>
</tbody>
</table>

Definitions: mg = milligram, dL = deciliter
For all three tests, within the prediabetes range, the higher the test result, the greater the risk of diabetes.

Prediabetes - Risk Factors

Risk Factors for Prediabetes/↑Risk for Diabetes:

- Age (> 45 Years Old)
- Overweight
- Family history of type 2 diabetes
- High blood pressure
- < 3x/week physical activity (physical inactivity)
- Gestational diabetes or baby > 9lbs.

# Type 2 Diabetes - Definitions

<table>
<thead>
<tr>
<th>Blood Glucose</th>
<th>Form of energy that comes from the food we eat (sugar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulin</td>
<td>Hormone made in the pancreas that helps carry glucose into the cell.</td>
</tr>
<tr>
<td>Pancreas</td>
<td>An organ that produces and releases insulin</td>
</tr>
<tr>
<td>Type 2 Diabetes</td>
<td>When you body does not use insulin properly, allowing your blood glucose to get to high</td>
</tr>
</tbody>
</table>
## Type 2 Diabetes - Risk Factors

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blurry Vision</td>
<td>Age (&gt; 45 Years Old)</td>
</tr>
<tr>
<td>Increased Thirst</td>
<td>Overweight/Obese</td>
</tr>
<tr>
<td>Increased Urination</td>
<td>Physical Inactivity</td>
</tr>
<tr>
<td>Tired</td>
<td>Stress</td>
</tr>
<tr>
<td>Weight Loss</td>
<td>Ethnicity</td>
</tr>
<tr>
<td>Infection</td>
<td>Gestational Diabetes</td>
</tr>
<tr>
<td>Slow to Heal</td>
<td>High Blood Pressure</td>
</tr>
<tr>
<td>Loss of Feeling in Feet</td>
<td>High Cholesterol</td>
</tr>
</tbody>
</table>

Ohio Prediabetes/Diabetes Trends
Prediabetes Prevalence Trends

Adult Prediabetes Prevalence by Year, Ohio 2008 - 2015


Note: BRFSS data prior to 2011 cannot be compared with data for 2011 and after due to changes in weighting methodology.
Diabetes Prevalence Trends

Adult Diabetes Prevalence by Year, Ohio 2006 - 2015


Note: BRFSS data prior to 2011 cannot be compared with data for 2011 and after due to changes in weighting methodology.
## Prediabetes/Diabetes Prevalence by Age

<table>
<thead>
<tr>
<th>Age</th>
<th>Prediabetes Prevalence (%)</th>
<th>Diabetes Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-24</td>
<td>N/A*</td>
<td>N/A*</td>
</tr>
<tr>
<td>25-34</td>
<td>3.3%</td>
<td>N/A*</td>
</tr>
<tr>
<td>35-44</td>
<td>5.0%</td>
<td>3.6%</td>
</tr>
<tr>
<td>45-54</td>
<td>9.2%</td>
<td>13.1%</td>
</tr>
<tr>
<td>55-64</td>
<td>10.6%</td>
<td>17.2%</td>
</tr>
<tr>
<td>65+</td>
<td>13.4%</td>
<td>23.4%</td>
</tr>
</tbody>
</table>

* Estimates does not meet the reliability criteria for reporting set by the CDC

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Prediabetes Prevalence (%)</th>
<th>Diabetes Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White, Non – Hispanic</td>
<td>7.2%</td>
<td>10.8%</td>
</tr>
<tr>
<td>Black, Non – Hispanic</td>
<td>10.3%</td>
<td>14.1%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>N/A*</td>
<td>8.4%</td>
</tr>
<tr>
<td>Other, Non – Hispanic</td>
<td>N/A*</td>
<td>N/A*</td>
</tr>
<tr>
<td>Multi - Racial</td>
<td>N/A*</td>
<td>N/A*</td>
</tr>
</tbody>
</table>

* Estimates does not meet the reliability criteria for reporting set by the CDC

Ohio Adults Living with Prediabetes

Population in Ohio
11,614,373

Adults who were told by a healthcare provider that they have PREDIABETES
7.5%

Population in Ohio DIAGNOSED with PREDIABETES
871,078

9 Out of 10 People With Prediabetes Don’t Know That They Have It
Population in Ohio
11,614,373

35% of Ohioans Have PREDIABETES

Adults who were told by a healthcare provider that they have PREDIABETES: 7.5%

Population in Ohio DIAGNOSED with PREDIABETES: 871,078

Adults who have NOT been diagnosed with prediabetes: 27.5%

Population in Ohio with UNDIAGNOSED PREDIABETES: 3,193,953

Prediabetes → Diabetes

15-30% of People with Prediabetes Could Develop Type 2 Diabetes Within 5 Years

Source: https://www.cdc.gov/features/diabetesfactsheet/
Ohio Adults Living with Diabetes

Population in Ohio
11,614,373

Adults who were told by a healthcare provider that they have DIABETES
11.0%

Population in Ohio DIAGNOSED with DIABETES
1,277,581

Cost Burden of Prediabetes on Ohio
Diabetes Cost in Ohio

- $4.6 BILLION spent in diabetes medical expenses and absenteeism from the workplace.
- Medicare/Medicaid paid nearly $1.8 BILLION in diabetes medical expenses.
- American Diabetes Association estimates $12 BILLION in medical and lost productivity expenses for diagnosed and undiagnosed diabetes, prediabetes and gestational diabetes in 2012.

# Diabetes Cost in Ohio

<table>
<thead>
<tr>
<th>Payer</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Payers</td>
<td>$1.4 Billion</td>
</tr>
<tr>
<td>Private Insurers</td>
<td>$1.3 Billion</td>
</tr>
<tr>
<td>Medicare</td>
<td>$1.3 Billion</td>
</tr>
<tr>
<td>Medicaid</td>
<td>$486 Million</td>
</tr>
</tbody>
</table>

![Figure 4.2. Estimated percentage of medical costs due to diabetes by payer, Ohio, 2010](http://www.healthy.ohio.gov/-/media/ODH/ASSETS/Files/health/Chronic-Disease-Plan/CD-Burden-Final_Webv2.pdf?la=en)

Source: Chronic Disease Cost Calculator version 2, Centers for Disease Control and Prevention, 2014.

Community Resources Available for Impact
Diabetes Prevention Program (DPP)

- CDC recognized evidence-based lifestyle change Program
- Empowers individuals to take charge of their health and well-being
- Helps make real lifestyle changes
  - Eating healthier
  - ↑physical activity
  - Improving problem solving & coping skills
DPP-Research

• Major multicenter clinical trial sponsored by NIH

• DPP Clinical Trial Overview
  – ~3,000 participants, all overweight, all with prediabetes
  – 3 Study Groups
    ▪ Lifestyle Intervention
    ▪ Metformin
    ▪ Placebo
DPP-Research

Lifestyle Intervention
- Intensive training in diet, physical activity and behavior modification
- One-on-one coaching by a healthcare professions

Metformin
- Medication and information about diet and exercise, but no intensive motivational counseling

Placebo
- Placebo and information about diet and exercise but not intensive motivational counseling
**DPP-Research**

**Lifestyle Intervention**
- 50% reached 7% weight loss by 24 weeks
- ↓ Risk of developing diabetes by 58%
- ↓ Risk of developing diabetes by 71% in adults over 60 years old.

**Metformin**
- ↓ Risk of developing diabetes by 31%
- 7.8% developed diabetes in the study year

**Placebo**
- 11% developed diabetes in the study year

DPP Overview

1. The core of the National Diabetes Prevention Program (National DPP) is a CDC-recognized, year-long lifestyle change program that offers participants:

- A trained lifestyle coach
- CDC-approved curriculum
- Group support over the course of a year

2. To successfully implement the lifestyle change program, the National DPP relies upon a variety of public-private partnerships. Together, these organizations work to:

- Build a workforce that can implement the lifestyle change program effectively
- Ensure quality and standardized reporting
- Deliver the lifestyle change program through organizations nationwide
- Increase referrals to and participation in the lifestyle change program

DPP Eligibility

Overweight Adults (18+) with a BMI ≥ 24; ≥ 22 if Asian

AND

No previous diagnosis of type 2 diabetes

AND

Have a blood test in prediabetes range within past year (min. 50%)

- HgA1C: 5.7% - 6.4%
- Fasting Plasma Glucose: 100 – 125 mg/dL
- Two-hour plasma glucose (75gm load): 140 – 199 mg/dL

OR

Previous GDM diagnosis
DO YOU HAVE PREDIABETES?

Prediabetes Risk Assessment

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)

Write your score in the box.

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)

Add up your score.

If you scored 5 or higher:
You’re likely to have prediabetes and are at high risk for 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, Hispanics/Latinos, American Indians, Asian Americans, and Pacific Islanders.

Higher body weights increase diabetes risk for everyone. Asian Americans are at increased diabetes risk at lower body weights than the rest of the general public (about 15 pounds lower).

For more information, visit us at DoIHavePrediabetes.org

LOWER YOUR RISK

Here’s the good news: it is possible with small steps to reverse prediabetes—and these measures can help you live a longer and healthier life.

If you are at high risk, the best thing to do is contact your doctor to see if additional testing is needed.

Visit DoIHavEPreDiabetes.org for more information on how to make small lifestyle changes to help lower your risk.

Original algorithm was validated without gestational diabetes as part of the model.
DPP Program Structure

• DPP- 12 Month Program
  – Months 1-6 : 1x/wk.
  – Months 6-12: 1-2x/month
    ▪ Programs may run months 6-12 a variety of ways

• Sessions are taught by a trained Lifestyle Coach
  – CDC developed curriculum
  – Programs may submit their own curriculum to CDC for approval
DPP Class Sessions

Participants will learn:

- Healthy Eating
- Adding/Increasing Physical Activity
- Coping with Stress
- Handling Challenges (i.e., dining out)

Requires tracking of:

- Food Log
- Physical Activity
- Goals
- Weight
Population Coverage of DPP and Satellite Location Within 15/30 Minute Drive Times
DPP Locations in Ohio

Check Out The

“Find an In-Person Class Near You” List

Diabetes Self Management

3 Diabetes Management Resources

Diabetes Self-Management Program (DSMP)

1. Stanford

Diabetes Self Management Education (DSME)

2. American Diabetes Association (ADA)
3. American Association of Diabetes Educators (AADE)
DSMP (Stanford)

• DSMP developed by Stanford University

• Educates on the management of type 2 diabetes.

• Workshops take place in community settings

Source: http://patienteducation.stanford.edu/programs/diabeteseng.html
DSMP (Stanford) - Research

- Original program developed in Spanish
  - Successful workshop
- Grant received to offer workshop in English
  - Tested effectiveness of English speaking workshop
- 6 & 12 month post English workshop
  - Improvements in depression, hypoglycemia, healthy eating, physician communication and reading food labels.

Source: http://patienteducation.stanford.edu/programs/diabeteseng.html
DSMP (Stanford) - Eligibility

Type 2 Diabetes
DSMP (Stanford) – Program Structure

- DSMP – 6 Week Program
  - 1x/Week
  - 2.5 Hours
- Curriculum developed by Stanford
- Facilitated by a pairs of peer leaders

Source: http://patienteducation.stanford.edu/programs/diabeteseng.html
DSMP (Stanford) – Workshop Sessions

Subjects covered include:

1. Techniques to deal with:
   - Diabetes
   - Fatigue
   - Pain
   - Hyper/Hypoglycemia
   - Stress
   - Emotional Problems

Source: http://patienteducation.stanford.edu/programs/diabeteseng.html
DSMP (Stanford) – Workshop Sessions

Subjects covered include:

2. Exercise techniques for strength and endurance
3. Healthy eating
4. Medication use
5. Working with Healthcare Providers

Source: http://patienteducation.stanford.edu/programs/diabeteseng.html
DSMP (Stanford)- Locations in Ohio

Check Out The “ Organizations Licensed to Offer the DSMP” List

http://patienteducation.stanford.edu/organ/dsmsiteohio.html

See a list Area Agency of Aging (AAA) Regions

https://aging.ohio.gov/resources/areaagenciesonaging/
Diabetes Self-Management Education (DSME)

- ↑ knowledge and skills to modify behaviors and self-manage the disease
- Incorporates needs, goals, and life experiences
- Guided by evidence-based standards

Source: https://www.diabeteseducator.org/practice/diabetes-education-accreditation-program-(deap)
DSME (ADA/AADE) - Research

- Program can be self-developed by organization
- Must meet National Standards for Diabetes Education and Support
  - Standards reviewed and revised every 5 years
  - Must meet standards for CMS reimbursement
DSME (ADA/AADE) – Eligibility

Type 2 Diabetes

[Additional eligibility may vary depending on program]
DSME (ADA/AADE)- Program/Session

As long as programs meet AADE National Standards, they can vary based on structure and sessions.

Program Structure + Class Sessions = Based on Program Layout

Programs can be taught by a CHW, Diabetes Educator, Dietitian

Source: https://www.diabeteseducator.org/practice/diabetes-education-accreditation-program-(deap)
DSME (ADA/AADE)– Locations in Ohio

Check Out The **AADE** Website for a list of accredited programs


Check Out The **ADA** Website for a list of accredited programs

http://professional.diabetes.org/erp_list?field_erp_state_value=OH&=Apply
Take Away

1. Diabetes Prevention/Management = Important
2. Diabetes Cost in Ohio = Expensive
3. Take Advantage of Community Resources
4. Community Resources = Better Patient Outcomes
Questions?

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