It’s Never Too Early…To Prevent Diabetes:  
The Lasting Impact of Gestational Diabetes on Mothers and Children

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National Diabetes Education Program

• US Department of Health and Human Services program jointly sponsored by:
  – National Institutes of Health
  – Centers for Disease Control and Prevention
  – With over 200 public and private partners

• Seeks to reduce the burden of diabetes in the US by facilitating adoption of proven approaches to prevent or delay the onset and progression of diabetes and its complications.

National Diabetes Education Program
www.YourDiabetesInfo.org
1-888-693-NDEP(1-888-693-6337)
A joint program of NIH and CDC
Gestational Diabetes Mellitus (GDM)

- Diagnosed during pregnancy.
- Affects at least 7% and possibly as many as 18% of U.S. pregnancies.
- Occurs frequently with other risk factors for diabetes.
- Infants may have macrosomia and other complications.
Gestational Diabetes Mellitus (GDM)

- Women with a history of GDM have a lifetime risk for developing diabetes, usually type 2.
- Child of pregnancy complicated by GDM may be at increased risk for obesity and type 2 diabetes.
New Criteria to Diagnose GDM

• Hyperglycemia and Adverse Pregnancy Outcome (HAPO) study.

• Using HAPO criteria will increase frequency of GDM to ~18% of pregnancies.

• Criteria advocated by the American Diabetes Association.
HAPO Study Findings

• New criteria call for a diagnosis of GDM when any of the following three 75-g, 2-hour oral glucose tolerance test thresholds are met or exceeded:
  – fasting 92 mg/dL
  – 1-hour 180 mg/dL
  – 2-hours 153 mg/dL

Awareness of GDM

• Awareness of need to manage GDM *during pregnancy* is high among women and health care professionals.

• Awareness is low about health risks for women who have a *HISTORY* of GDM.

• Many women do not receive and/or are not aware of the need for follow-up testing.
Management of GDM

• Careful blood glucose management
  – Self-testing of blood glucose
  – Insulin may be necessary
• Meal plan and regular physical activity
• Healthy weight gain
• Mother may need to test urine ketones and BP
• Daily record to track management plan
Why is Gestational Diabetes a Concern AFTER Pregnancy?

- Immediately after pregnancy, 5% to 10% of women with GDM have diabetes, usually type 2.
- 35% to 60% chance of developing diabetes in the 10 to 20 years after delivery.
- Children of GDM pregnancies may be at greater risk for future obesity and diabetes.
- Risk for CVD is increased.

Diabetes Prevention Program (DPP)

The DPP was a major clinical trial to determine whether diet and exercise or the oral diabetes drug metformin could prevent or delay the onset of type 2 diabetes.

DPP Participants

Adults at high risk for type 2 diabetes

- Presence of IGT, Mean age 51 years
- Mean body mass index (BMI) 34
- 68% women (350 with GDM)
- 45% minority groups
  - African Americans
  - Hispanics/Latinos
  - American Indians
  - Asian Americans and Pacific Islanders

DPP Methods

Lifestyle intervention
- 5% to 7% weight reduction
- Healthy low-calorie, low-fat diet
- 30 minutes of physical activity, 5 days a week

Metformin
- Oral diabetes drug

Placebo

Incidence of Diabetes

- Placebo (n=1082)
- Metformin (n=1073, p<0.001 vs. Placebo)
- Lifestyle (n=1079, p<0.001 vs. Metformin, p<0.001 vs. Placebo)

Risk reduction
- 31% by metformin
- 58% by lifestyle

Cumulative incidence (%)

Years from randomization

The DPP Research Group, *NEJM* 346:393-403, 2002
Cumulative Incidence of Diabetes in DPP in Women with a History of GDM

Risk reduction vs. placebo
- 51% by metformin ($p=0.006$)
- 55% by lifestyle ($p=0.002$)

Risk reduction vs. metformin
- 8% by lifestyle ($p=0.781$)

Adjusted for age

Years from randomization

Placebo (n = 122)
Metformin (n = 110)
Lifestyle (n=117)
DPP 10-Year Follow-Up

Compared with the placebo control group:

• Lifestyle changes reduced the rate of progression to type 2 diabetes by 34% and delayed onset of type 2 diabetes by ~4 yrs.

• Metformin reduced the rate of progression by 18% and delayed diabetes onset by ~2 years.

• 10-year data for the GDM subset are not yet available.

Good News!

- Small steps can lower diabetes risk.
- Lifestyle changes include dietary changes and physical activity to lead to modest weight reduction and maintenance.
- Early detection of pre-diabetes may provide an opportunity to prevent or delay the onset of type 2 diabetes.
Breastfeeding and GDM

• Many positive findings – so breastfeeding is encouraged in women with prior GDM.
• Breastfeeding may reduce child's risk of overweight, obesity, and type 2 diabetes.

Gunderson EP. Diabetes Care 2007; 30 Suppl 2: S161-8
Diabetes Case Finding Recommendations
Post GDM

• 6 to 12 weeks postpartum (PP) – 2hr PG post 75-g glucose challenge.

• Every 1-3 yrs & at 1st prenatal visit if PP screen test is normal – A1C, FPG or 2hr PG post 75-g glucose challenge.

• Annually if pre-diabetes is diagnosed – A1C, FPG or 2hr PG post 75-g glucose challenge.

ADA. Diabetes Care 2011; 34(Suppl 1): S11-61
Actions for Obstetricians & Gynecologists

• Screen for glucose intolerance at 6-12 week post partum visit.
• Recommend and support breastfeeding.
• Refer patients to a registered dietitian or community program for weight management.
• Consider using pharmacological agents for pre-diabetes.
• Treat existing hypertension.
Actions for Obstetricians & Gynecologists

Counsel women with prior GDM about:

• Increased lifelong risk for diabetes and need for regular screening;
• Their child’s possible risk for obesity and diabetes.

Counsel women with prior GDM to:

• Seek BG screening before their next pregnancy;
• Eat healthy foods and get at least 30 min. of physical activity 5 days per week.
Additional Actions for Those Who Provide Ongoing Primary Care

- Screen for glucose intolerance every 1-3 years.
- Place screening alerts in the medical record.
- Send telephone or email reminder messages to women who need screening.
- Encourage *family* to eat healthy foods and child to get at least 60 min. of physical activity each day.
- Note mother’s GDM in child’s medical record.
Opportunities

The diagnosis of GDM should initiate a long term intervention by primary care providers including ob/gyns, pediatricians, family practice physicians, & nurse practitioners to:

- Minimize risk for the mother of developing diabetes or to diagnose it early;
- Ensure the child’s healthy growth and development.
Putting Findings Into Practice

• Women with a history of GDM provide a unique opportunity for identification of, and intervention in, a high risk population.
hGDM Outreach Initiative

• Support to extend the reach of NDEP’s, *It’s Never Too Early…To Prevent Diabetes.*

• Outreach activities to raise awareness of:
  – Future health risks for women with a history of GDM and her offspring;
  – Steps they can take to prevent or delay the onset of diabetes.
Goals

• Decrease the number of women with a history of GDM who develop diabetes.
• Raise awareness of health risks among families with children whose mothers were diagnosed with GDM.
• Improve the reach of information and delivery of health care professional counseling regarding future health risks and the importance of adopting and maintaining healthy behaviors among these families.
Audiences

• Women with a history of GDM/currently diagnosed with GDM.
  – Specifically African American, Hispanic/Latina, American Indian, Asian, Pacific Islander, and Alaska Native women who have been diagnosed with GDM
• Health care professionals, including OB/GYN, primary care providers including family physicians, pediatricians, and other health care professionals.
Activities

• Mother’s Day/National Women’s Heath Week Outreach
  – Radio Media Tour
  – Matte Articles – English and Spanish
  – Ready-to-Use Article
  – Web Badge
Live Healthy News

PREGNATAL NEWS

Must-Get Test for Moms-To-Be

This simple screen can protect your health—and your baby's.

- If you're pregnant, the poking and pricking you undergo at the Dr. o's office comes with the territory. But there's one screen your M.D. may have missed: an oral glucose tolerance test, which checks for gestational diabetes. A new study in Obstetrics & Gynecology reveals that one third of expectant moms don't receive it, even though all women (or not) are vulnerable to the condition. "Not only does it raise the risk for birth complications, but about half of those with gestational diabetes go on to develop type 2 diabetes within 10 years," says Judith Franckin, M.D., of the National Institute of Diabetes and Digestive and Kidney Diseases. If your doc doesn't mention testing at around 24 weeks, ask her about it.

- Nearly one in ten pregnant women get gestational diabetes.
NDEP Resources

• **GAMEPLAN** for HCPs and Patients

• Outreach materials including:
  - Ready-to-use ‘matte’ articles
  - Print and Broadcast PSAs
  - Tip Sheets/Fact Sheets

• **COMING SOON**: Online resource library
Learn More/Get Involved
YourDiabetesInfo.org/GDM

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