



Focus on

Gestational Diabetes

Among Maryland Women Giving Birth 2004-2010

December 2012

“At 6 months of pregnancy, they did a test and they told me I had high levels of sugar in my blood. I had no symptoms.”

PRAMS mother



Gestational diabetes is diabetes that starts during pregnancy (gestation) and occurs when women are not able to make and use all the insulin they need during pregnancy. This results in high blood sugar. Pregnant women with gestational diabetes tend to have larger babies and mothers have an increased risk of high blood pressure and infections during pregnancy.

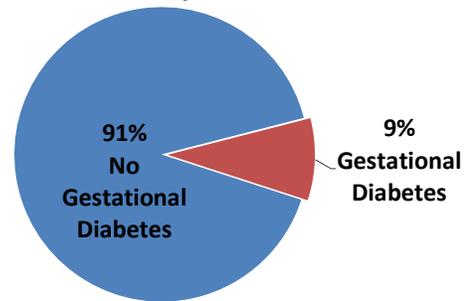
Although gestational diabetes usually resolves after the pregnancy, mothers are at increased risk for developing type 2 diabetes later in life. Their offspring are at greater risk for problems as newborns such as hypoglycemia (low blood sugar), prematurity and cardiac problems. They may also develop childhood obesity and diabetes later.

Prevalence of Gestational Diabetes

The 2004 – 2010 Maryland PRAMS survey included the following question:

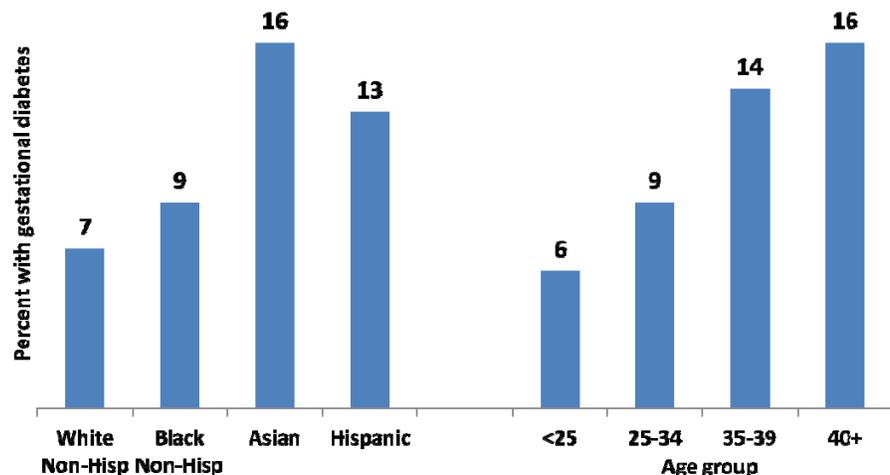
During your most recent pregnancy, were you told by a doctor or nurse, or other health care worker that you had gestational diabetes (diabetes that started during this pregnancy)?

Figure 1. Prevalence of Gestational Diabetes, Maryland 2004-2010



From 2004–2010, 9% of postpartum women in Maryland reported that they had gestational diabetes (Figure 1). Gestational diabetes was most prevalent among women who were 40 years of age or more at the time of delivery (16%) or Asian (16%)(Figure 2).

Figure 2. Gestational Diabetes by Maternal Race/Ethnicity and Age, Maryland 2004-2010



Factors Associated with Gestational Diabetes

Multiple Gestation

Gestational diabetes was more prevalent among women with multiple gestations than singleton gestations. Twenty-six percent of women who were having triplet or higher gestations reported gestational diabetes. They were nearly three times more likely to report having diabetes during pregnancy than women with singleton gestations (9%) (Figure 3).

Figure 3. Gestational Diabetes by Singleton and Multiple Gestation, Maryland 2004-2010

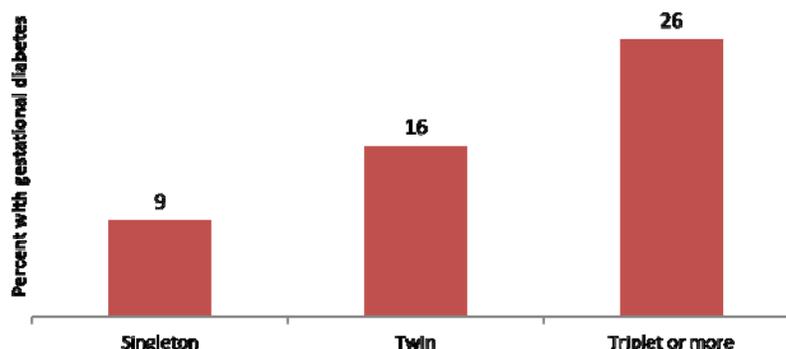


Table 1. Factors Associated with Gestational Diabetes, Maryland 2004-2010 (N=1,296)

Factor	Gestational Diabetes %
Before Pregnancy	
Body Mass Index (BMI)	
<18.5, underweight	6
18.5-24.9, normal weight*	6
25-29.9, overweight*	10
30 and +, obese*	16
Hypertension*—yes	17
Hypertension*—no	9
Cigarette smoking, 3 months pre-pregnancy—yes	9
Cigarette smoking, 3 months pre-pregnancy—no	9
Unintended pregnancy	8
Intended pregnancy	10
Physical abuse by current or former partner—yes	13
Physical abuse by current or former partner—no	9
During Pregnancy	
Initiation of care, 3rd trimester or no care	12
Initiation of care, 1st or 2nd trimester	10
Hypertension*—yes	16
Hypertension*—no	8
Cigarette smoking, last 3 months—yes	10
Cigarette smoking, last 3 months—no	9
Alcohol use, last 3 months—yes	6
Alcohol use, last 3 months—no	9
Physical abuse by current or former partner—yes	9
Physical abuse by current of former partner—no	9

*Rates differed significantly (p<.05)

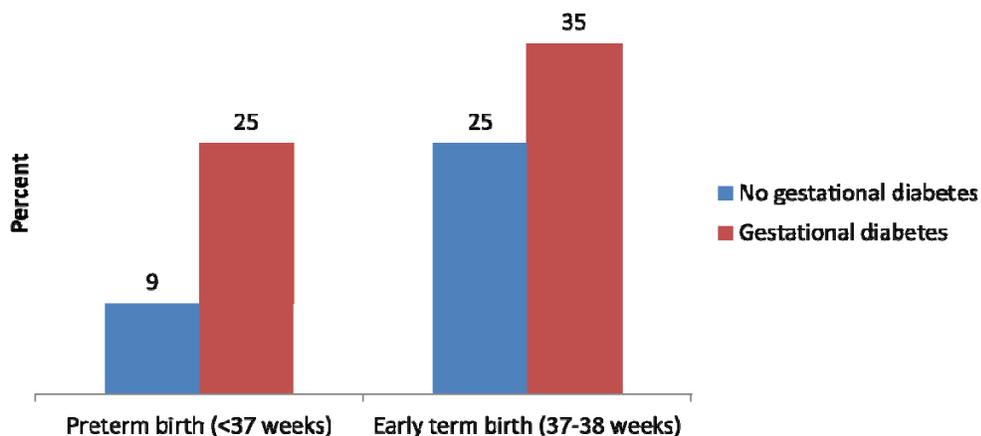
The highest rates of gestational diabetes were reported by women who stated that they had an obese BMI before pregnancy (16%), or had hypertension before (17%) or during (16%) pregnancy. Women with an obese BMI before pregnancy had nearly three times the rate of gestational diabetes as women with a normal BMI; and, women with hypertension before or during pregnancy had twice the rate of gestational diabetes as women without hypertension. (Table 1). These different rates were statistically significant.

Caeserean section

The primary caesarean section rate among women who reported gestational diabetes was 43% - a significantly higher rate than among women who were not diabetic during pregnancy (31%) (data not shown).

Preterm and Early Term Birth

Figure 4. Prevalence of Preterm Birth and Early Term Birth by Gestational Diabetes, Maryland 2004-2010



One out of every two women with gestational diabetes experienced a premature delivery (15%) or an early term birth (35%). (Figure 4).

“Because of my morbid obesity, I had extreme difficulty during my pregnancy. I had diabetes and high blood pressure and had to monitor my blood sugar 4 times a day and blood pressure 3 times a day.”

Discussion

Gestational diabetes was reported by 9% of pregnant women, and has far-reaching consequences for the health of women, as well as the health of their infants. Gestational diabetes was more commonly reported among mothers who were 40 years of age or more at the time of delivery (16%), Asian (16%) or Hispanic (13%). Factors such as multiple pregnancy greatly increase the risk of diabetes. Mothers with a triplet gestation were nearly three times more likely to develop diabetes than mothers with a singleton gestation. Other factors such as hypertension before or during pregnancy, and obesity before pregnancy were also associated with increased prevalence of gestational diabetes. One out of every two women who reported gestational hypertension delivered at less than 39 weeks of gestation.

Gestational diabetes has serious health consequences for both the mother and child including increased chances of future type 2 diabetes and its complications of kidney disease, blindness, infection and amputation. During pregnancy, diabetes can cause maternal hypertensive disorders, newborn low blood sugar, and large – sized babies (macrosomia) at delivery. Macrosomia increase the risk of birth injury and c-section.

Because diabetes has few symptoms, all mothers should be tested for diabetes during the 24th-28th week of pregnancy and at the postpartum visit.

“Get tested for diabetes. You may need to get on a diabetic diet during pregnancy.”

PRAMS Mothers



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PRAMS Methodology

Data included in this report were collected through the Pregnancy Risk Assessment Monitoring System (PRAMS), a surveillance system established by the Centers for Disease Control and Prevention (CDC) to obtain information about maternal behaviors and experiences that may be associated with adverse pregnancy outcomes.

In Maryland, the collection of PRAMS data is a collaborative effort of the Department

of Health and Mental Hygiene and the CDC. Each month, a sample of 200 Maryland women who have recently delivered live born infants are surveyed by mail or by telephone, and responses are weighted to make the results representative of all Maryland births.

This report is based on the responses of 11,156 Maryland mothers who delivered live infants between January 1, 2004 and December 31, 2010 and were surveyed two to nine months after delivery.

Limitations of Report

This report has several limitations. First, gestational diabetes was not determined through a clinical diagnosis, but instead through mothers' self-reports. Self-report may overestimate or underestimate the true incidence of gestational diabetes during pregnancy in Maryland. Whether the diabetes was treated was not ascertained nor was the severity of the diabetes. Older maternal age was a significant risk factor for gestational diabetes and this may have lessened the

unadjusted statistical significance of other risk factors that were more common in younger women, such as smoking. Additionally, since this is a retrospective survey, there may be recall bias. That is, women who experienced diabetes may over-report negative factors, while women who did not experience diabetes may under-report negative factors. Lastly, this report presents unadjusted associations between risk factors and gestational diabetes, and as a result causal relationships cannot be determined.

Resources

American Diabetes Association
www.diabetes.org/

CDC Features, Diabetes and Pregnancy
www.cdc.gov/Features/DiabetesPregnancy/



Maryland Department of Health and Mental Hygiene
Center for Maternal and Child Health • Vital Statistics Administration

Martin O'Malley, Governor; Anthony G. Brown, Lieutenant Governor; Joshua M. Sharfstein, M.D., Secretary

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Funding for the publication was provided by the Maryland Department of Health and Mental Hygiene and by the Centers for Disease Control and Prevention (CDC) Cooperative Agreement # UR6/DP-000542 for Pregnancy Risk Assessment Monitoring System (PRAMS). The contents do not necessarily represent the official views of the CDC.