

In 2011, nearly 32 of every 1,000 Georgia women who gave birth had gestational diabetes”¹

Gestational Diabetes **increases** the risk for maternal complications and adverse health outcomes of infants²



2013 Georgia Gestational Diabetes Burden Report

Engaging in Diabetes Self-Management Education (DSME) programs can result in cost-savings and improved outcomes postpartum^{2,3}

Overview: Prevalence of Diabetes among Women in Georgia

Georgia Diabetes Prevention and Control Program

Vision

Georgians living well, free of diabetes and its complications, with increased access to quality-oriented diabetes care and healthier options where they live, work, play and learn.

Mission

Protecting and preserving the eyes, hearts, kidneys and feet of Georgians living well with diabetes, prediabetes, and gestational diabetes.

Immediately after pregnancy, 5% to 10% of women with gestational diabetes were found to have diabetes¹

Approximately 10.5%, or 390,000, Georgia women have diagnosed diabetes as of 2011.⁵

Genetic and lifestyle factors contribute to the development of Diabetes.

Risk Factors for Diabetes include:

- older age (age 45 years and older)
- family history of diabetes
- history of Gestational Diabetes Mellitus (GDM)
- history of prediabetes [also known as “borderline” diabetes, impaired glucose tolerance (IGT), impaired fasting glucose (IFG)]
- high blood pressure (hypertension) or high cholesterol levels
- being overweight or obese
- member of a certain race and ethnic group, including African-American, Hispanic, American Indian/Alaska Native, and Asian American

From 2000 to 2010, the prevalence of diagnosed diabetes among all Georgia women increased significantly from 7.5% to 10.0% (Figure 1).

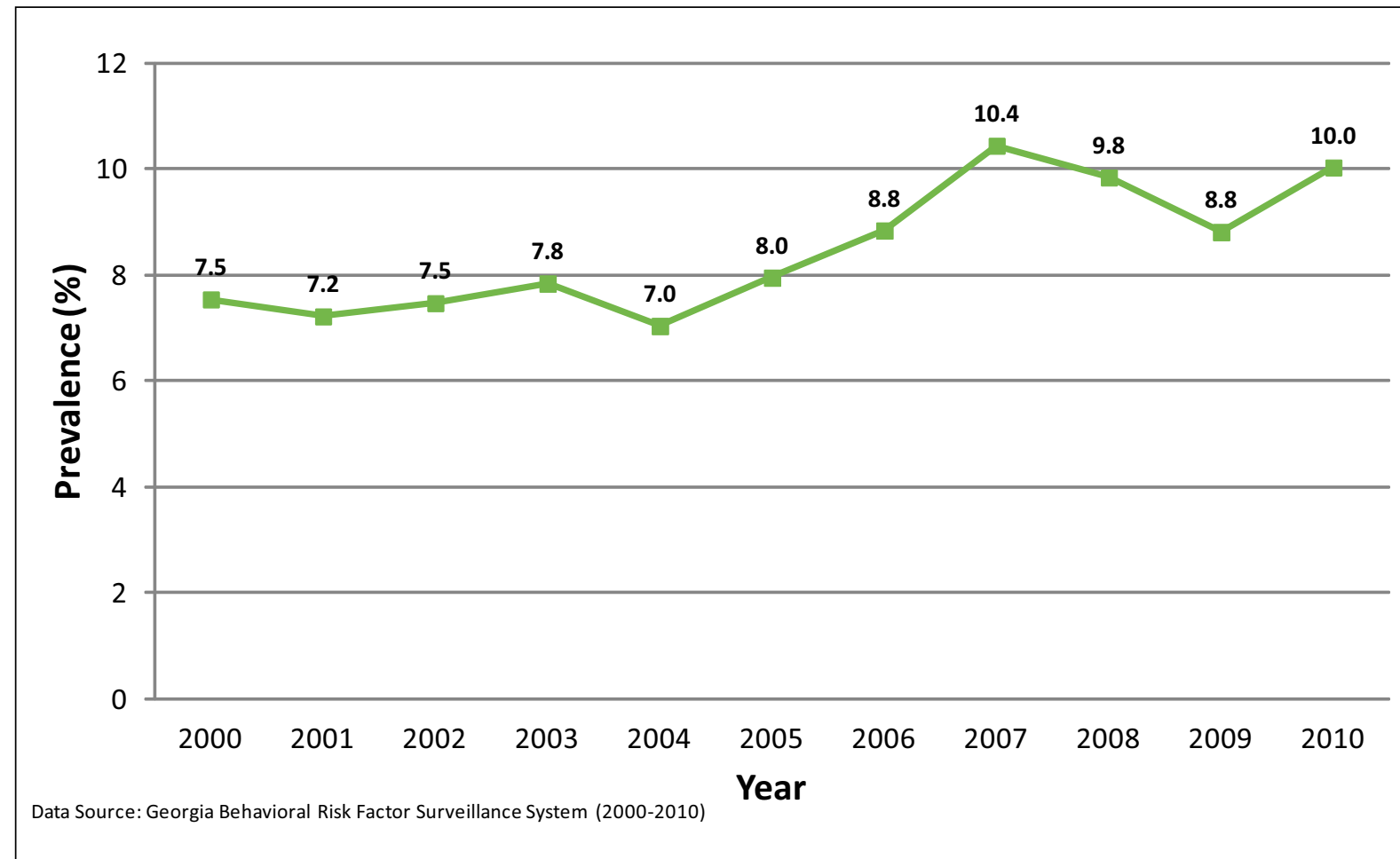


Figure 1. Prevalence of Diabetes among Women, Georgia, 2000-2010

Overview: Gestational Diabetes Mellitus in Georgia

Gestational Diabetes Mellitus (GDM) is a form of glucose intolerance diagnosed in women during pregnancy.

In 2011, 32.3 per 1,000 Georgia women that gave birth (3,954 women) were diagnosed with gestational diabetes. During pregnancy, GDM requires lifestyle modification (i.e. weight management) and/or treatment to normalize maternal blood glucose levels to prevent complications for the pregnant woman and infant.

Risk Factors for GDM include⁶:

- previous pregnancy with GDM
- history of a baby born weighing over 9 pounds
- family history of diabetes
- aged 25 years or older
- being overweight, obese, or underweight
- certain race and ethnic groups, including African-American, Hispanic, American Indian/Alaska Native, Native Hawaiian or Pacific Islander

Women who have had gestational diabetes have a 35% to 60% chance of developing diabetes within the next 10 to 20 years.⁴



The Cost of Gestational Diabetes Mellitus in the United States

- Approximately 36% of GDM-related costs and 43% of pre-existing diabetes during pregnancy costs are covered by government programs – primarily Medicaid.⁷
- GDM increases hospital costs by 18% (\$4,500) while pre-existing diabetes among pregnant women increases hospital costs by 55% (\$5,900) compared to hospital costs for deliveries by women who did not have diabetes (\$3,800).⁸
- In total, the costs for all pregnant women with diagnosed diabetes, including both hospitalization for childbirth and pregnancy complications, were more than \$1.4 billion, or 7.8% of all maternal costs.⁸



Prior to pregnancy, approximately 2.3%, or 3,104, of pregnant Georgia women had diagnosed diabetes (including Type 1 and Type 2).⁹

Prior to Pregnancy

Prior to Pregnancy: Preventive Screening for Diabetes

It is important to increase awareness among women that are pregnant or planning to become pregnant about the importance of early detection and control of Gestational Diabetes Mellitus during pregnancy as well as preventing the onset of diabetes and prediabetes postpartum.

Approximately 10%, or 13,686, of Georgia women visited a healthcare professional to be checked or treated for diabetes prior to pregnancy⁹

Overview

Nationally, the incidence of gestational diabetes ranges from 20 to 100 per 1,000 pregnancies.⁴

Potential Risks Associated with Diabetes during Pregnancy

Pregnant women with diagnosed diabetes are considered at high risk for maternal complications and their infants are at risk for adverse outcomes such as miscarriage and preterm birth.¹⁰ GDM also increases the potential need for cesarean section (C-section) deliveries due to the risk of giving birth to a large baby.¹⁰

Poorly controlled GDM is also a significant health risk during pregnancy, affecting both the mother and unborn infant.¹⁰ Maternal complications associated with uncontrolled GDM include increased risk for high blood pressure during pregnancy (Pregnancy-Induced Hypertension (PIH)).¹⁰

Infants of women who have GDM experience a higher risk of hypoglycemia (low blood sugar), birth defects, and overly large body size which can complicate delivery.¹⁰ These children are also at risk for the future development of both diabetes and obesity.¹⁰



Brief Overview

Incidence of Gestational Diabetes among Georgia Women

In 2011, the gestational diabetes incidence rate was greatest among Georgia women that had private or commercial insurance, were aged 35 years and older, had received more than a high school education, of Hispanic race/ethnicity, or were obese.

Health Insurance Status

Gestational diabetes incidence was highest among Georgia women with private or commercial insurance (39.0 per 1,000 women that gave birth; 1,565 women) and uninsured women (33.5 per 1,000 women that gave birth; 196 women) (Figure 2). The incidence of GDM was lower among Georgia women who were recipients of other forms of health insurance coverage, such as women receiving Medicaid (26.2 per 1,000 women that gave birth; 1,441 women) and recipients of military health insurance (21.9 per 1,000 women that gave birth; 111 women).

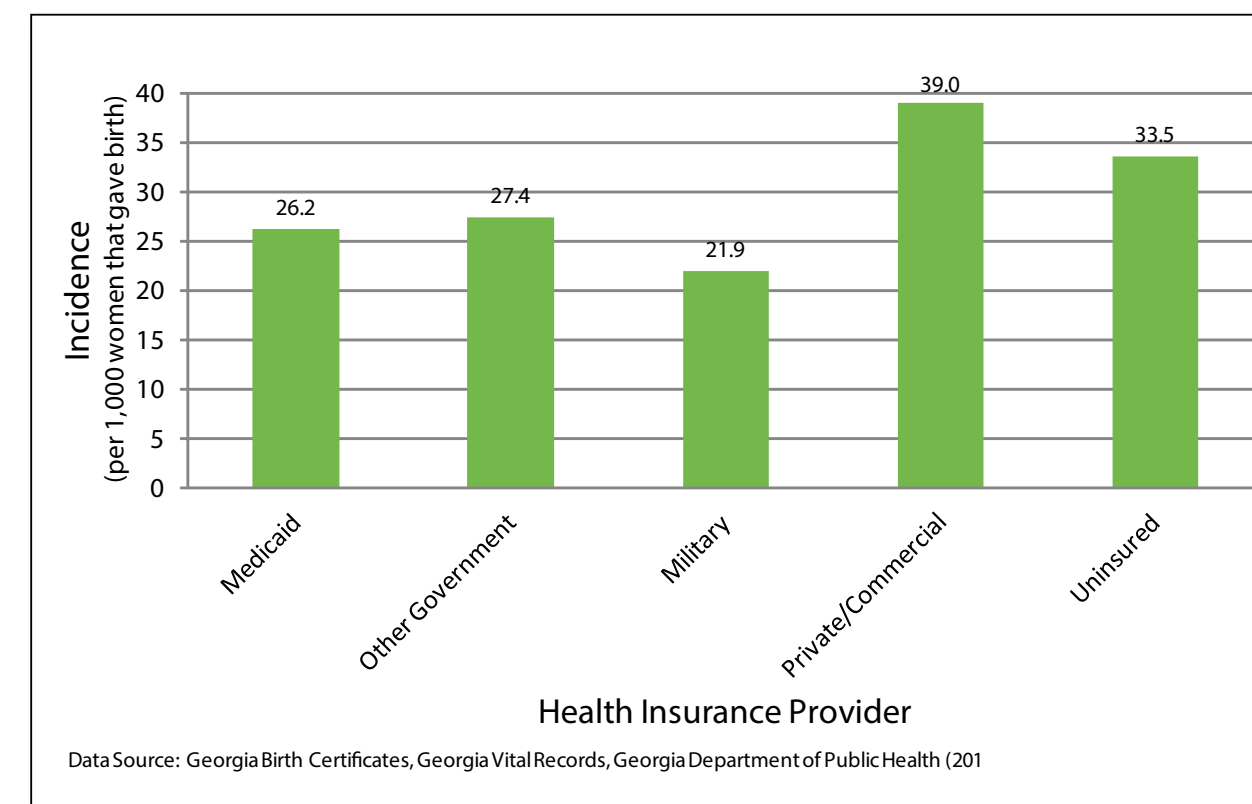


Figure 2. Diagnosed Gestational Diabetes Incidence by Insurance Status, 2011

Age and Level of Education

Age

Gestational diabetes incidence was greatest in women aged 35 years and older (62.8 per 1,000 women that gave birth; 1,032 women) (Figure 3). Only 9.1 per 1,000 women that gave birth 19 years old and younger (111 women) had GDM.

Highest Education Obtained

Compared to women with less education, Georgia women with more than a high school education (36.4 per 1,000 women that gave birth; 2,150 women) had the greatest GDM incidence rate (Figure 4).

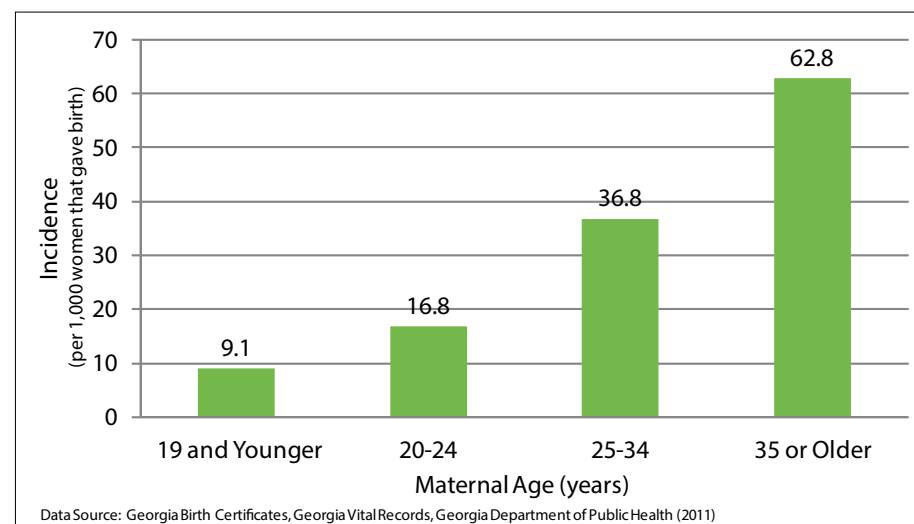


Figure 3. Diagnosed Gestational Diabetes Incidence by Age, 2011

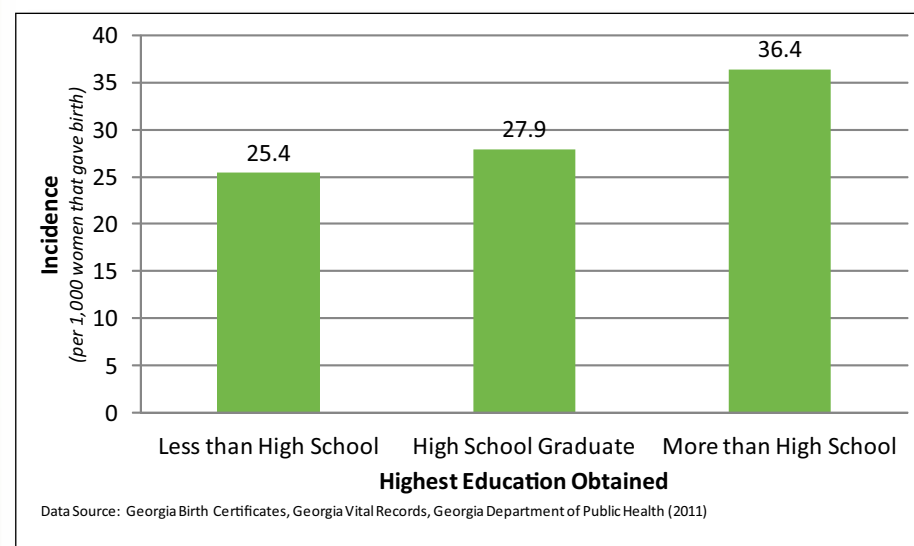


Figure 4. Diagnosed Gestational Diabetes Incidence by Level of Education, 2011

Race/Ethnicity

Hispanic women had the highest incidence of Gestational Diabetes Mellitus

In Georgia, the incidence rate of GDM was greatest among Hispanic women (37.2 per 1,000 women that gave birth; 651 women) and White, Non-Hispanic women (31.5 per 1,000 women that gave birth; 1,698 women) (Figure 5).

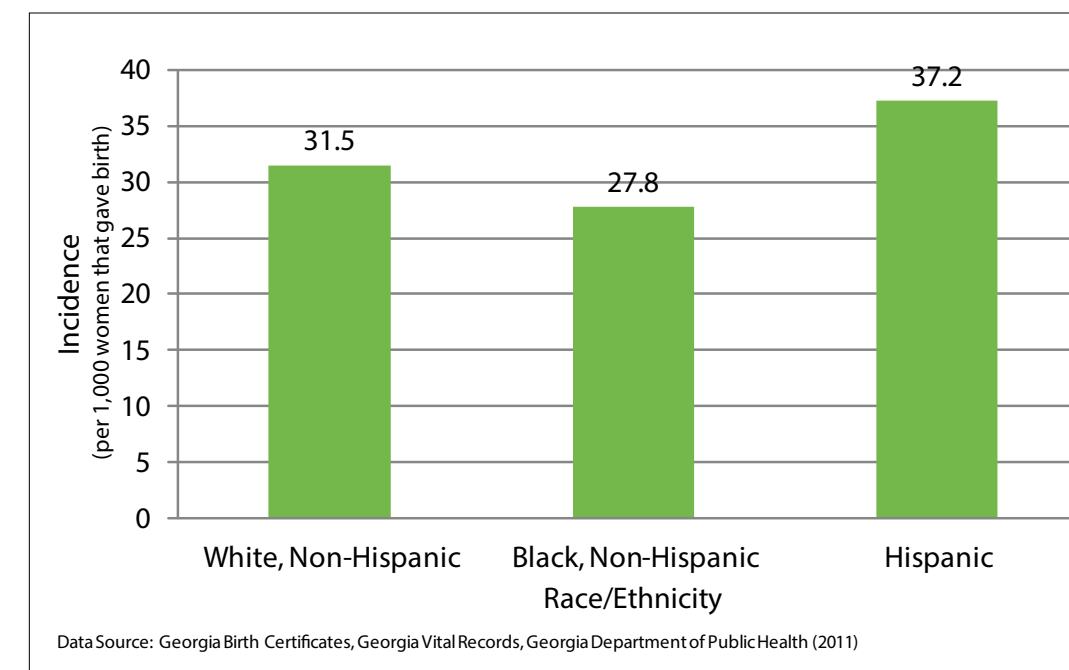


Figure 5. Diagnosed Gestational Diabetes Incidence by Race/Ethnicity, 2011



Weight Status

Excessive weight and a lack of exercise increase insulin resistance. An increased insulin resistance results in an elevated risk of developing prediabetes and Type 2 diabetes.

Weight status can be defined using the Body Mass Index (BMI) (Table 1). Compared to women of normal weight, gestational diabetes incidence was greatest in women who were obese (59.6 per 1,000 women that gave birth; 1,564 women) and overweight (35.1 per 1,000 women that gave birth; 877 women) (Figure 6).

Obese women were 3 times more likely to have gestational diabetes than women of normal weight.

Table 1. Criteria for BMI Categories

BMI Category	BMI (kg/m ²)
Underweight	Less than 18.5
Normal	18.5 - 24.9
Overweight	25.0 - 29.9
Obese	Greater than 30.0

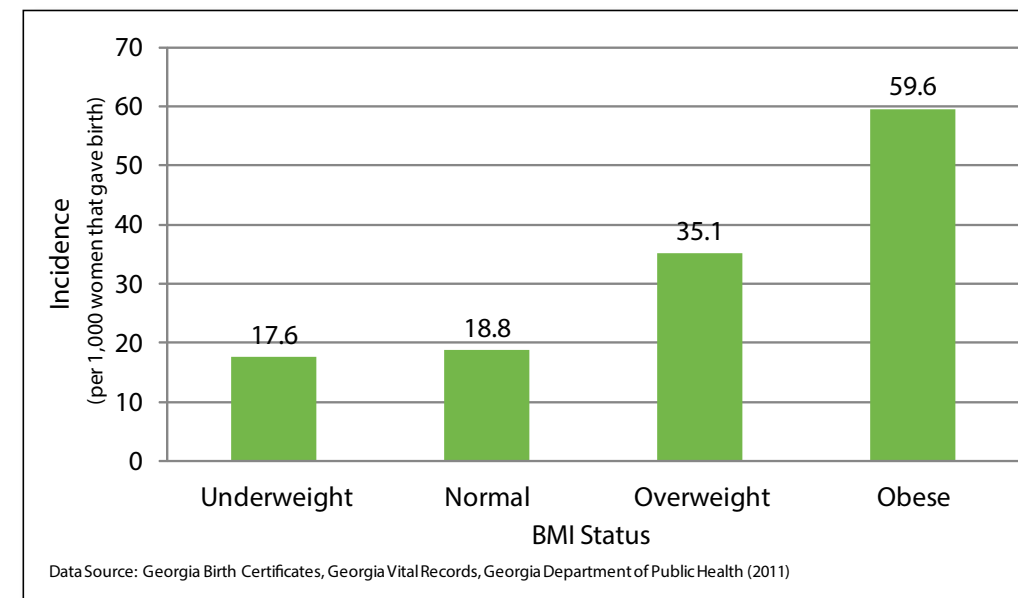


Figure 4. Diagnosed Gestational Diabetes Incidence by Maternal Age, 2011

Early and routine screening for diabetes and prediabetes is essential to preventing future diabetes-related complications and costs among pregnant and postpartum women.¹²

Proposed Recommendations and Solutions

As noted in the 2013 American Diabetes Association Standards of Medical Care in Diabetes, targeted and routine screening, treatment and follow-up for diabetes among high risk population groups such as pregnant women are extremely important.¹² The recommendations related to GDM include the following¹²:

- screen for undiagnosed Type 2 diabetes at the first prenatal visit in women with risk factors for diabetes
- in pregnant women not previously known to have diabetes, screen for GDM at 24-28 weeks of gestation
- screen women with GDM for persistent diabetes at 6-12 weeks postpartum
- women with a history of GDM should have a lifelong screening for a development of diabetes or prediabetes every 1-3 years

Nationally, approximately 32% of pregnant women are not screened for GDM.¹¹

Diabetes Prevention and Self-Management Education Programs are Proven and Powerful

Diabetes Self-Management Education (DSME) programs can result in cost savings and improved outcomes.³ It is recommended that persons with diagnosed diabetes receive DSME according to national standards and diabetes self-management support at the time of their diabetes is diagnosed and as needed thereafter.

Diabetes Self-Management Education and Training (DSME/T) is a collaborative process in which persons diagnosed with or at high risk for diabetes (i.e. persons with Gestational Diabetes Mellitus and/or prediabetes) gain the knowledge and skills necessary to successfully self-manage their diabetes and reduce the risk of related complications. DSME programs taught by a professionally-qualified diabetes educator can reduce health costs for those diagnosed with diabetes and for adults at high risk for diabetes.

For Georgia women with a history of diabetes prior to pregnancy, participating in DSME programs is essential to successfully manage their diabetes and preventing the onset of diabetes-related complications postpartum. Listed below are a few resources available to support Georgians with DSME:

American Association of Diabetes Educators (AADE) Accredited Diabetes Self-Management Education (DSME) Programs and Certified Diabetes Educators (CDEs) <http://www.diabeteseducator.org/DiabetesEducation/Find.html>

American Diabetes Association (ADA) Recognized Diabetes Education Programs http://professional.diabetes.org/ERP_List.aspx

Diabetes Self-Management Education and Training (DSME/T) may reduce overall pregnancy-related health costs by \$13,000 per pregnancy in women with GDM.

Maintaining a healthy weight status before and following a GDM pregnancy can reduce risks for developing Type 2 Diabetes. Engaging in evidence-based diabetes prevention programs and diabetes self-management education programs can be beneficial to Georgians at risk for the development of diabetes.

References

¹2011 Georgia Birth Certificate Data, Georgia Vital Records, Georgia Department of Public Health.

²Centers for Disease Control and Prevention. "Diabetes and Pregnancy: Gestational Diabetes". Atlanta, GA: U.S. Department of Health and Human Services, 2013. (Available at: http://www.cdc.gov/pregnancy/documents/Diabetes_and_Pregnancy508.pdf)

³Boren SA et al. "Costs and Benefits Associated with Diabetes Education: A Review of the Literature." *The Diabetes Educator*; 35(1), 2009.

⁴Centers for Disease Control and Prevention. "National Diabetes Fact Sheet: National estimates and general information on Diabetes and Prediabetes in the United States, 2011". Atlanta, GA: U.S. Department of Health and Human Services, 2011. (Available at: <http://www.cdc.gov/diabetes/pubs/estimates11.htm#8>)

⁵2011 Georgia Behavioral Risk Factor Surveillance System (BRFSS), Georgia Chronic Disease, Healthy Behaviors, and Injury Epidemiology Section, Georgia Department of Public Health.

⁶Centers for Disease Control and Prevention. "Gestational Diabetes." Atlanta, GA: U.S. Department of Health and Human Services, 2013. (Available at: <http://www.cdc.gov/diabetes/pubs/pdf/gestationaldiabetes.pdf>)

⁷Chen Y et al. "Cost of Gestational Diabetes Mellitus in the United States in 2007". *Population Health Management*; 12 (3), 2009: 26-35.

⁸Wier LM et al. "Hospitalizations Related to Diabetes in Pregnancy, 2008". *Healthcare Cost and Utilization Project, Agency for Healthcare Research and Quality; Statistical Brief #102*, 2010.

⁹2009 Pregnancy Risk Assessment Monitoring System (PRAMS), Georgia Maternal and Child Health Section, Georgia Department of Public Health.

¹⁰Centers for Disease Control and Prevention. "Diabetes and Pregnancy". Atlanta, GA: U.S. Department of Health and Human Services, 2013. (Available at: <http://www.cdc.gov/features/diabetespregnancy/>)

¹¹Blatt AJ et al. "Gaps in diabetes screening during pregnancy and postpartum." *Obstetrics & Gynecology*; 117(1): 61-68, 2011.

¹²American Diabetes Association. *Standards of Medical Care in Diabetes*. *Diabetes Care*, 2013; 36(Suppl 1):S11-S66.

¹³Fitzner K et al. "An Assessment of Patient Education and Self Management in Diabetes Disease Management." *Population Health Management*; 11, 2008.

¹⁴Kitzmilller et al. "Gestational Diabetes After Delivery: Short-term management and long-term risks." *Diabetes Care*; 30(2), 2007.

For more diabetes surveillance data and summaries, please review the following link:
<http://www.dph.georgia.gov/diabetes-surveillance>



The Georgia Diabetes Prevention and Control Program is part of a national effort by the CDC Division of Diabetes Translation and is focused on statewide efforts to improve the health of Georgians

Georgia Diabetes Prevention and Control Program

<http://dph.georgia.gov/diabetes-prevention-and-control-program-0>

Cornerstones of the Georgia Diabetes Prevention and Control Program
(CDC Grant No. 6U58DP002005-05):

- Diabetes Data Surveillance and Evaluation
- Access to Diabetes Self-Management Education Programs and Preventive Care Resources
- Quality of Care
- Health Equity
- Public Policy
- Health Communication: Diabetes Prevention and Diabetes Management

