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## Interventions to Increase Access to Care and Quality of Care for Women With Gestational Diabetes

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The prevalence of gestational diabetes mellitus (GDM) in the United States is increasing, and rates in some populations range from 3 to 14%.<sup>1–3</sup> The true prevalence of GDM may be even higher because underreporting of GDM on birth certificates is well documented.<sup>1–4</sup> Difficulties in documenting and reaching consensus on the prevalence of GDM exist for a number of reasons, including the use of various diagnostic criteria, past confusion about the specific criteria used to diagnose GDM, and the lack of a universal recommendation for screening and diagnosis.<sup>5,6</sup>

In previous publications,<sup>5–7</sup> researchers have outlined and critiqued the various GDM guidelines established by professional organizations. Most agree on assessment of the risk for GDM for all pregnant women, with the exception of the U.S. Preventive Service Task Force.<sup>8</sup> However, they differ on testing procedures, diagnostic criteria, target blood glucose levels during pregnancy, and scheduled postpartum testing and follow-up for diabetes.<sup>5,6</sup>

A lack of consensus regarding screening for and diagnosing GDM is concerning because it can be a barrier for health care providers (HCPs) in diagnosing and documenting GDM in medical records and on birth certificates. Appropriate documentation of GDM in hospital and prenatal care records and on birth certificates would increase identification of women at risk for type 2 diabetes and facilitate outreach by HCPs to ensure that they receive the information and resources needed to help prevent the development of diabetes in the future.<sup>9</sup>

This article describes intervention efforts and the results of a pilot project called The GDM Collaborative: Better Data, Better Care that are being funded by the Centers for Disease Control and Prevention in collaboration with the National Association of Chronic Disease Directors and the National Association of Maternal and Child Health Programs. The GDM Collaborative was developed to establish a multistate program to:

- Identify, catalog, and validate routinely collected GDM prevalence data;
- Identify gaps in the quality of GDM prevalence data and documented care;
- Develop interventions to improve access to care and increase postpartum follow-up for women with a history of GDM; and
- Enhance collaborations among public health programs.

In the initial phase of the program, five states participated in a validation project to assess the quality of GDM data in various datasets. Cross-comparisons were made using multiple sources of 2004 GDM data, including the Pregnancy Risk Assessment Monitoring System (PRAMS), birth certificates, medical records, hospital discharge data, and prenatal records.

PRAMS data are self-reported and were used to ascertain whether women identified themselves as having elevated blood glucose levels during their most recent pregnancy. On PRAMS, women were asked, "During your most recent pregnancy, did you have high blood sugar (diabetes) that started during this pregnancy?" Women who gave a positive response to this question were considered to have GDM. These data were then compared to birth certificates, hospital medical records, and prenatal chart records for 277 participants with a positive response to the PRAMS question to ascertain whether the GDM diagnosis was documented for each participant.

In brief, the results of this validation process revealed that a diagnosis of GDM was omitted from 38% of the 277 birth certificates reviewed, although the diagnosis was found in 62% of maternal medical records for corresponding patients. Twenty-six percent of the participants with risk factors for GDM lacked documented testing and/or follow-up for GDM, and 36% did not have an elevated glucose level or a GDM diagnosis. Only 50% of the medical records reviewed had the appropriate International Classification of Diseases, Ninth Revision (ICD-9) code (code 648.8) confirming the diagnosis of abnormal glucose tolerance during pregnancy. In addition, only 5% of all the medical charts reviewed documented follow-up postpartum glucose testing and care or referrals for preventive care.

The omission of a GDM diagnosis from birth certificates and missing information about abnormal glucose tolerance in maternal medical records can result in women with GDM going undetected by the health care system. This can affect whether women with GDM receive the necessary follow-up preventive care services to reduce their risk of developing type 2 diabetes.

Given these findings, the five states participating in the GDM Collaborative began developing a variety of interventions to improve the quality of GDM prevalence data and enhance provision of care for women with a history of GDM. Interventions from two participating states, West Virginia and Utah, are highlighted below.

### **Utah: Improving GDM Documentation in Medical Records**

Concerned about GDM reporting discrepancies between birth certificates and PRAMS, the Utah GDM Collaborative team developed initiatives to identify reasons for these discrepancies. Maternal worksheets, completed in the hospital by mothers after delivery, were revised to include the 2009 version of the PRAMS question, which asked specifically about GDM (as opposed to asking about diabetes or high blood sugar). This question, "During your most recent pregnancy, were you told by a doctor, nurse, or other health care worker that you had gestational diabetes (diabetes that started during this pregnancy)?," was added to alert medical records personnel to closely review the patient's medical record chart for a GDM diagnosis to ensure accurate GDM data translation to the birth certificate.

The Utah Office of Vital Records and Statistics implemented a training program for hospital staff transcribing medical record data to birth certificates to improve documentation of GDM on birth certificates. In 2010, Utah conducted a second validation review to determine whether GDM reporting had improved as a result of these changes. In this validation study (April to August 2010), 445 maternal worksheets had self-reported cases of GDM, but only 77% had a GDM diagnosis reported on the birth certificate. This is a 15% increase of confirmed GDM cases compared to the initial validation; however, a discrepancy exists given that 23% of the women reported GDM on their maternal worksheets but had no such diagnosis documented on their child's birth certificate or in the medical records.

The Utah GDM Collaborative team conducted a medical record review for those worksheets ( $n = 100$ ) that had self-reported GDM but no indication of GDM on the birth certificate. This review was conducted to determine where discrepancies existed to validate diagnosis and to ascertain the reasons for these discrepancies.

A GDM diagnosis was confirmed on 58 medical records, but the diagnosis could not be confirmed on the remaining 42 charts. Reasons for discrepancies included 1) patient misunderstanding her condition, reporting GDM when she actually had preexisting type 2 diabetes; 2) patient had a history of GDM in a prior pregnancy but not during the one under review; and 3) patient had an elevated glucose level that was insufficient for a diagnosis of GDM (e.g., high 1-hour screening results, but normal 2- or 3-hour results).

Only 26 (44.8%) of the confirmed GDM cases had ICD-9 code 648.8 documented. Failures in ICD coding procedures may result in inadequate patient discharge education and referral and, ultimately, in inaccurate hospital discharge data. The Utah GDM Collaborative team concluded that, although discrepancies existed in documenting GDM between maternal worksheets and birth certificates and medical records, the maternal worksheets are useful as a flag for medical records personnel to research further to ascertain a confirmed diagnosis for birth certificates and diagnosis coding.

To improve GDM care, various interventions are needed. Based on the above-mentioned findings, Utah's Office of Vital Records and Statistics will intervene by continuing to conduct annual training for medical records personnel to improve GDM reporting. The training teaches clerks to accurately review maternal worksheets and ensure that if GDM is listed on the worksheet it is also documented on the birth certificate and confirmed in the medical record.

At the patient level, it appears that some of the discrepancies found in these data may result from women not understanding what GDM is. As stated earlier, some of the women who had preexisting diabetes self-reported erroneously that they had GDM. Diabetes educators could assist such women in better understanding their condition and communicating their health history and health care needs to HCPs.

### **West Virginia: Developing GDM Interventions in an Outpatient Clinic**

Implemented in a tertiary care outpatient clinic, West Virginia's interventions focused on developing a system to improve the identification and care of women with GDM, with an

emphasis on increasing postpartum follow-up testing. The three aims were to 1) establish a process for identifying and documenting GDM, 2) educate women with GDM during the prenatal period about reducing the risk of type 2 diabetes, and 3) improve postpartum blood glucose testing.

An interdisciplinary team consisting of clinical and public health practitioners and research staff focused on implementing a variety of strategies to meet the above-mentioned aims of the project. These strategies included 1) providing GDM education for all clinic staff regarding GDM screening guidelines, the diagnosis algorithm, follow-up and postpartum care, marking and labeling charts appropriately, pulling charts, and using a postpartum checklist; 2) standardizing clinic procedures for screening and documenting GDM; 3) providing type 2 diabetes risk education during prenatal visits; 4) scheduling postpartum visits with glucose testing orders before discharge; 5) performing glucose testing in the clinic during the postpartum visit; and 6) referring women with GDM to the clinic's Diabetes Center for education classes that focused on nutrition, self-monitoring, and physical activity.

After 1 year, comparison of baseline and current clinic data showed improvements in several areas. Compliance with screening for GDM (using a 1-hour, 50-g oral glucose challenge test and, if failed, then a 3-hour, 100-g glucose tolerance test) improved from 55% at baseline to 73% at 1 year. A GDM diagnosis was documented on 100% of the patients' charts. Attendance at postpartum visits increased from 50 to 89%. Postpartum laboratory test orders for glucose testing increased from 10% at baseline to 39% at 1 year. The researchers also evaluated whether the number of women who received GDM education increased over time. At baseline, 73% of the charts included documented GDM education. At 1 year, documented GDM education increased to 95%, a relative improvement of 30% over baseline.

This assessment indicates that changing and standardizing the clinic processes for identification and care for women with GDM improved screening, documentation, and follow-up for GDM. The team continues to monitor the processes with a focus on sustaining changes and, if necessary, intervening to remove any barriers that may impede the provision of care for women with GDM.

## Conclusion

GDM is a strong predictor of type 2 diabetes in women, but far too many women who develop this condition are not receiving the care needed to help them prevent or delay their progression to type 2 diabetes. An important step to reach women with GDM is to improve public health surveillance. This is crucial for accurate documentation, outreach, patient education, and timely intervention.

The initial findings from these two sites suggest that gaps exist in our current surveillance system and that there is a need for better data sources and quality improvement processes to improve outreach to women with a history of GDM for postpartum and long-term care. Data from West Virginia's project also suggest that making system changes in clinical practices

and documentation can also improve the quality of GDM care. Replication of these interventions in other states is needed to determine whether similar gaps exist in state-specific GDM data and how these gaps affect the provision and receipt of postpartum care.

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## References

1. Lawrence JM, Chen W, Black MH, Sacks DA, Hsu JW. Prevalence and timing of postpartum glucose testing and sustained glucose dysregulation after gestational diabetes mellitus. *Diabetes Care*. 2010; 33:569–576. [PubMed: 20040657]
2. Lawrence JM, Chen W, Contreras R, Sacks DA. Trends in the prevalence of preexisting diabetes and gestational diabetes mellitus among a racially/ethnically diverse population of pregnant women, 1999–2005. *Diabetes Care*. 2008; 31:899–904. [PubMed: 18223030]
3. Getahun D, Nath C, Ananth CV, Chavez MR, Smulian JC. Gestational diabetes in the United States: temporal trends 1989 through 2004. *Am J Obstet Gynecol*. 2008; 198:525e1–525e5. [PubMed: 18279822]
4. Devlin H, Desai J, Walaszek A. Reviewing performance of birth certificate and hospital discharge data to identify births complicated by maternal diabetes. *Matern Child Health J*. 2008; 13:660–666. [PubMed: 18766434]
5. American College of Obstetricians and Gynecologists. Committee opinion 504: screening and diagnosis of gestational diabetes. *Obstet Gynecol*. 2011; 118:751–753. [PubMed: 21860317]
6. American Diabetes Association. Diagnosis and classification of diabetes mellitus. *Diabetes Care*. 2011; 34(Suppl. 1):S62–S69. [PubMed: 21193628]
7. Mulholland C, Njoroge T, Mersereau P, Williams J. Comparison of guidelines available in the United States for diagnosis and management of diabetes before, during, and after pregnancy. *J Womens Health*. 2007; 16:790–801.
8. U.S. Preventive Services Task Force. Screening for gestational diabetes mellitus: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2008; 148:759–765. [PubMed: 18490688]
9. Cho NH, Lim S, Jang HC, Park HE, Metzger BE. Elevated homocysteine as a risk factor for the development of diabetes in women with a previous history of gestational diabetes mellitus. *Diabetes Care*. 2005; 28:2750–2755. [PubMed: 16249551]