The Challenges of Providing Diabetes Education in Resource-Limited Settings to Women With Diabetes in Pregnancy: Perspectives of an Educator

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IN BRIEF In resource-limited settings, the challenges of providing diabetes education are magnified. To provide the best education, these challenges and barriers need to be identified and addressed. Many times, at the "teachable moment" of a gestational diabetes diagnosis, we are able to not only address the immediate concerns, but also help patients adopt and continue long-term healthy lifestyle behaviors that improve the health of their entire family.

There are special challenges in delivering gestational diabetes care and education in low-resource settings. These include limited access to care, the potential for lower literacy and health literacy levels, and language, cultural, social, and financial barriers. It is important that all of these obstacles be recognized and addressed as needed.

After a woman has been diagnosed with gestational diabetes mellitus (GDM) at her obstetrician's office in the Main Line Health System (MLHS) in southeastern Pennsylvania, she is referred to the diabetes center at one of the MLHS hospitals to meet with a certified diabetes educator (CDE). In one appointment lasting ~90 minutes, three topics are covered: the pathophysiology of GDM, self-monitoring of blood glucose (SMBG), and meal planning. The population served in this system is mostly Caucasian, with an assortment of other ethnicities represented, as well.

Community Volunteers in Medicine (CVIM) is a community-based, volunteer nonprofit

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organization providing a primary care medical home, medications, and dental care to low-income working people without insurance in Chester County, Pa. The population served by CVIM is ethnically diverse, encompassing Hispanic, Caucasian, African-American, and other patients. In addition to primary care providers, CVIM has an extensive complement of medical specialty providers and also partners with local hospitals. Although CVIM has an active gynecology/women's health program, it does not provide obstetrics services. All of its female patients of child-bearing age who have diabetes or prediabetes are encouraged to participate in prepregnancy counseling/planning and postpartum follow-up for their changing needs. Those with GDM during their pregnancy are followed up postpartum for the prevention of type 2 diabetes. When a woman with diabetes becomes pregnant, the diabetes educators at CVIM begin helping her initiate a healthy eating plan and increase SMBG and medications as needed until her care is transferred to her choice of either the obstetrics and gynecology clinic at Chester County Hospital or La Comunidad Hispana for pregnancy care and delivery at Jennersville Hospital.

As with general diabetes education, education for women with GDM must be individualized to ensure best outcomes. As Cefalu and Golden (1) wrote about type 2 diabetes, innovative approaches are needed to understand and address health disparities in diabetes care, and "the most effective interventions to reduce racial/ethnic disparities in diabetes care are those that are culturally adapted and multilevel, targeting the patient, provider, health care system, and interface of the health care system with surrounding community-based resources."

Education and counseling of women with GDM are required to empower pregnant women with knowledge so they can make the best choices for their own and their baby's health. Berg (2) has written that educators need to act to promote women's mastery of, rather than enslavement to, the disease through comprehensive education. The education of women with GDM is of paramount importance given a 2014 analysis by the Centers for Disease Control and Prevention finding the prevalence of GDM to be as high as 9.2% of all pregnancies (3).

Providing education and counseling for women with GDM should include reviewing the pathophysiology of GDM, teaching when and how to perform SMBG, explaining the need for meal planning, and teaching carbohydrate counting. The ultimate goals are to control blood glucose, allow for appropriate weight gain, and avoid complications for pregnant women and their babies.

There are challenges for all women with GDM, and those in resource-limited settings face even greater challenges. Common challenges for all women with GDM include monitoring blood glucose, planning healthful meals, and attending extra appointments because of their GDM diagnosis.

Women with GDM are advised to check their blood glucose four times daily: fasting and either 1 or 2 hours after each meal. Health insurance plans usually cover the costs of SMBG meters, test strips, and lancets. Typically, women with GDM are given a meter and a starter pack of strips and lancets at their first appointment with a CDE after the GDM diagnosis. It is important for the educator to know which meter is the "preferred meter" for each type of health insurance. Providing the preferred meter will ensure the lowest copayment for the patient. If the cost of monitoring supplies is prohibitive, extra supplies from the office can be given, or the patient could be directed to use a less expensive strip.

In today's health care environment, even for people with health insurance, sometimes the copayments, coinsurance, and deductibles are so expensive that the cost of SMBG supplies is still an issue. Educators may have good relationships with the sales representatives of several meter companies, who might be able to supply meters and sample packs of strips to the offices. When a person with a lack of funds needs extra supplies, that stock can be used. Many community health centers such as CVIM offer the advantage of being able to provide all SMBG supplies at no charge through a dispensary.

Explaining the importance of checking blood glucose and the impact that the mother's glucose during pregnancy can have on the health of the baby are important topics to cover in patient education. We want to make sure that these patients understand why we are asking them to perform SMBG and how we will be using the resulting data to guide treatment and ensure the best outcomes for them and their babies.

Meal planning and carbohydrate counting also can be challenging for everyone. We have found that we see the most success when we stay close to a woman's usual food choices. This means being culturally sensitive to food choices and being mindful of food costs and preparation time. In addition to the standard American diet list of foods and carbohydrates, food lists that include specific ethnic dishes and even fast foods or convenient foods should be used when appropriate. Care must be individualized, especially when it involves food choices.

Low-resource settings are not unique in facing challenges to healthful meal planning, but they have even more challenges than others. It is especially important to be mindful of food costs and access to healthful food choices in such settings. CVIM has a bilingual social worker to provide support regarding the challenges and stressors related to the financial needs of patients. Many times, people will say it is too expensive to eat healthfully. In such instances, specific

examples can be used to illustrate how to obtain lower-cost healthful foods that are accessible in patients' neighborhoods. For example, many people report that protein sources are expensive, but eggs and peanut butter can be mentioned as lower-cost protein sources.

By reviewing patients' SMBG logs every week, educators can ask about the food choices they made and the impact those choices had on their blood glucose. Telling someone that they cannot eat specific foods is less effective than helping them directly observe through monitoring what specific foods can do to their blood glucose levels. Personalized education gives patients the information and motivation to make healthier choices.

Necessary extra medical appointments can be especially challenging for women with GDM. Traveling to and from appointments can be difficult for those who do not drive or have access to a car. Although our hospital facilities and the CVIM are both located near convenient bus routes, public transportation may not be available in some rural areas. CVIM also offers a wide range of services in one convenient "medical home." This is a place where people are comfortable and used to coming for all types of medical appointments. Family members are invited to attend appointments. We are also accommodating of children attending visits with their mothers because of the challenges of securing child care. Many women have financial stressors and do not want to miss too much work, and some are working two part-time jobs without benefits such as medical insurance or sick, vacation, or maternity leave. Some even have an underlying fear that, if they miss time from work, they will lose their job and only source of income. Offering appointments in the early-morning, daytime, and early-evening hours is one accommodation that makes attending medical visits easier for working women. In addition to offering flexible hours to overcome time challenges, we invite patients to call or email us should they have any questions between appointments. Knowing that we are available for follow-up questions gives all of our patients with GDM great comfort.

TABLE 1. 10 Elements of Competence for Using the Teach-Back Method Effectively

1.	Use a caring tone of voice and attitude.
2.	Display comfortable body language, and make eye contact.
3.	Use plain language.
4.	Use non-shaming, open-ended questions.
5.	Avoid asking questions that can be answered with a simple "yes" or "no."
6.	Use reader-friendly print materials to support learning.
7.	Emphasize that the responsibility to explain clearly is on you, the provider.
8.	Ask patients to explain what you have taught, using their own words.
9.	If the patient is not able to teach back correctly, explain the concept again and then recheck.
10.	Document the use of and patient's response to the teach-back method.

Adapted from ref. 5.

Additional challenges faced especially by patients with limited resources may include problems understanding their care plans because of lower literacy levels, language and cultural barriers, and social and financial barriers. Providers must recognize these barriers and develop strategies to overcome them. Studies have demonstrated that patients recall and comprehend as little as 50% of what they are told by physicians (4). For patients with lower literacy levels, all information should be kept to a third-grade reading and comprehension level. Handouts that include many pictures, as well as handouts available in Spanish and other languages, are useful.

The education method that has been most helpful in our program is the "teach-back" method (Table 1) (5). Teach-back is a way to ensure that patients understand exactly what you have said; it is a research-based health literacy intervention that improves patient-provider communication and patient health outcomes (4). When teaching about SMBG, educators should have patients demonstrate exactly what they will be doing with their own meter at home. Their first blood glucose check should be done in the office. Often, repetition and clarification are needed until they understand how to perform SMBG and are comfortable using their meter. When teaching meal planning and carbohydrate counting, patients should be asked to plan some of their own meals, using their usual foods and staying within the recommended carbohydrate limits.

There are often language and cultural barriers in resource-limited settings. Many of the staff members at CVIM are bilingual. A certified medical interpreter should be used when needed. It is important not to rely on other family members or friends to interpret because health information may be misunderstood and incorrectly interpreted (6). Even when using an interpreter, the teach-back method remains important. This gives both educators and patients the confidence to know that what is being taught is correctly understood.

In MLHS, we are fortunate to be able to use CultureVision (7), which enables us to look up and access information about many diverse cultures to help us to better communicate with patients in a culturally sensitive and understanding man-

ner. Health care professionals should be appropriately trained in cultural competencies so all patients receive optimal care (8). The effectiveness of culturally competent diabetes self-management education has been shown to improve health outcomes in Mexican Americans with type 2 diabetes (9). GDM education should provide the same benefits. By better understanding the cultures of our patients, we can provide respectful education, while also dispelling any myths or "old wives' tales" that may be common in their culture. When an open, trusting relationship can be established with patients, they will be more likely to feel comfortable sharing their beliefs and stories with their care providers.

Financial barriers also may affect many aspects of care, including patients' ability to pay for SMBG supplies, make appropriate food choices, and attend scheduled appointments. Open, honest, and nonjudgmental communication may help both educators and patients better understand and solve such problems. For example, if a woman has put off scheduling her appointment for GDM care or has missed scheduled appointments, the problem may not be that she is "noncompliant," but rather that work or childcare issues are preventing her from scheduling.

Conclusion

All women with GDM deserve the best possible care. GDM education occurs at a time when most women are willing to make healthy lifestyle changes for the good of their future baby. Many times, this is a "teachable moment," when women are ready to listen and open to learn. In many low-resource settings, a large majority of patients are from ethnicities at higher risk for GDM and type 2 diabetes. At this teachable moment, we need to stress the importance of following up with healthy habits both during pregnancy and after delivery. Those who provide care and education for women with GDM have the privilege of helping patients adopt new lifestyle behaviors that help not only to ensure good pregnancy outcomes, but also to improve their future health and the health of their entire family.

Duality of Interest

No potential conflicts of interest relevant to this article were reported.

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