Lessons from WINGS
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Notwithstanding several decades of research, there are several constraints to gestational diabetes (GDM) care, from screening to postpartum follow-up. Awareness and knowledge about GDM is poor even among healthcare professionals (HCPs). Furthermore, lack of standardized protocols in screening and management, and lack of coordination among HCPs involved in providing care for GDM often results in less than optimal care and poor follow-up during pregnancy and after delivery. The postpartum period provides an opportunity for lifestyle intervention to prevent future risk of diabetes.

To address these challenges and critical gaps in effective care for GDM, WINGS (Women In India with GDM Strategy), a three and a half year-long project, was conducted by IDF from 2012 to 2015 in Chennai, Tamil Nadu, India, with the aim of developing a model of care that is suitable for women with GDM in low- and middle-income countries. It was carried out in two phases.

In Phase 1, a situational analysis was conducted to understand the practice patterns of healthcare professionals and determine the best screening criteria which was achieved through a pilot study. In Phase 2, the project aimed to develop a standardized approach to GDM care that was evidence-based, feasible, and acceptable in resource-constrained settings. The project also aimed to evaluate the effectiveness of this new model of care (MOC).

**WINGS take-home messages**

After implementation of the WINGS MOC, women with GDM were found to have pregnancy outcomes similar to pregnant women without GDM, i.e., the general population of Tamil Nadu. Most importantly, WINGS saw ninety-six percent of women return for follow-up after delivery which is a new record of sorts in India where post-partum follow-up rates are usually between ten to twenty percent.

At the six weeks follow-up screening, four percent of women had developed type 2 diabetes. This percentage likely reflects pre-existing diabetes in these women and further emphasizes the need for an immediate follow-up check for diabetes after the delivery. WINGS demonstrated that through an intensive and continued effort, universal post-partum follow up is achievable, which creates a significant opportunity for prevention of type 2 diabetes.

WINGS demonstrates that following a structured model of care, pregnancy outcomes in women with GDM can be improved to the level seen in non-diabetic women. This multi-level strategy helps to approach GDM at not only at the individual level but also at the family and community levels providing a holistic approach to overcome barriers to care.

**The framework of the GDM model of care**

The WINGS pilot phase was made local by using materials in Tamil and Hindi languages as well as English. Aligning with the new WHO definition on GDM, WINGS was a joint community and health facility-based intervention for the management of GDM. The WINGS MOC is suitable for integration into existing maternal and child health systems, strengthening capacity to address GDM and improving health outcomes of women with GDM and their newborns.

The WINGS model approach to care for GDM was developed targeting the individual (pregnant women), their families, the health facility, community, and the global scientific audience with a variety of initiatives and programs.

- At the individual and family level, WINGS aimed to build the awareness and education on GDM through one-on-one counseling, educational programs, and various educational materials. An educational booklet on GDM entitled “Having a baby?” was developed for pregnant mothers. The booklet uses simple and easy to understand language to educate women on defining GDM, how it develops, who is at risk, and instructions related to self-managing.
the condition, such as blood glucose testing, healthy eating, safe exercise and an area for diary keeping.

- At the health facility level, capacity building was done by training HCPs in identifying, treating, and managing GDM. A training curriculum was developed for this purpose.

- At the larger community level, especially the remote and the rural regions which have limited access and availability to GDM care, community health workers (CHW) were trained with basic awareness and information about GDM. Community-based activities were conducted as part of the WINGS outreach program with the help of experts in the field of nutrition. Pregnant women were invited to attend the program and were educated about proper nutrition and physical activity through cooking demonstrations and lively interactive sessions. Link to CHW training manual.

- Reaching out to a broader global audience was always a part of the WINGS objective with the idea that the implementation of the model in India would help to provide insights and recommendations for improved care of women diagnosed with GDM in other low-resource settings. Through peer-reviewed scientific publications, the model was disseminated and made available to the global community.

Study HCP participants found that WINGS provides a comprehensive package of tools for every level of care focusing on diagnosis, management, and follow-up of women with GDM who were followed prospectively throughout their pregnancy. The educational booklet, discussed above, offers guidance on self-management of GDM including sample meal plans and physical activity tips. Medical nutrition therapy (MNT) was the first line of treatment given to women with GDM and women were advised to undergo fasting blood glucose and postprandial blood glucose testing every fortnight—insulin was indicated when the target blood glucose levels were not achieved with MNT. Women were evaluated for pregnancy outcomes and postpartum glucose tolerance status.

The issue: GDM in low- and middle-income countries²

GDM contributes to about ninety percent of diabetes complicating pregnancy.

Prevalence of GDM has dramatically increased in the past 20 years among various ethnic groups. IDF estimates that
as of 2015, 16.2% of women with live births had some form of hypoglycaemia in pregnancy, 85% of which were due to GDM. There is a notable difference in the prevalence of GDM, with the IDF South-East Asia Region (SEA) having the highest prevalence (87.6%) of all the low- and middle-income countries where access to care is often limited. Asian women are more prone to develop GDM than European women and Indian women have an 11-fold increased risk of developing glucose intolerance in pregnancy compared to Caucasian women. Studies done in the 1980’s estimated the prevalence of GDM in India at two percent, which substantially increased to 16.55% in 2000.

GDM imposes risks for both mother and fetus, and some of these risks continue throughout the life of mother and child. Immediate maternal complications include preeclampsia, need for cesarean sections, and poly/oligohydramnios. Complications in the baby include hyperinsulinemia, macrosomia, shoulder dystocia, neonatal hypoglycemia, and respiratory distress syndrome. Women with GDM are at an increased risk of GDM in future pregnancies and they are also at a higher risk of developing type 2 diabetes in the future. GDM also increases the risk of obesity and glucose intolerance in the offspring. GDM is an important public health issue that has major repercussions for both mother and offspring. Detection of GDM provides a window of opportunity to intervene and reduce adverse perinatal outcomes.3

For more information on IDF work on GDM: https://www.idf.org/our-activities/care-prevention/gdm.html

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