THE IDF APPROACH FOR CARE AND MANAGEMENT OF GESTATIONAL DIABETES MELLITUS

WINGS PROJECT SUMMARY REPORT

WINGS
WOMEN IN INDIA with GDM STRATEGY
An International Diabetes Federation Project

International Diabetes Federation

Abbott Fund

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FULL DETAILS:

International Diabetes Federation

Abbott Fund

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MRS PARIMALA, DIAGNOSED WITH GDM DURING THE THIRD MONTH OF HER SECOND PREGNANCY:

"I have a three-year-old child and I am currently seven months pregnant. I did not have high blood glucose levels during my first pregnancy, and back then I was not aware about GDM. Now I am aware about this condition and related complications... I was advised to follow a diet – restrict sugar and carbohydrates, eat more wheat products; and to exercise. Besides, my mother-in-law has diabetes so it is easy for me to follow the diet for GDM.

I feel relaxed to tell others that I have GDM. Many people in my area have similar problems. I sometimes get advice from other people with diabetes about diet and I am receiving support from everyone I know. Also, I am willing to support with all information I can should someone come to me for an advice."

INTRODUCTION

Diabetes is a serious reproductive, maternal and child health issue, with gestational diabetes mellitus (GDM) contributing to maternal morbidity and mortality. GDM is a temporary disease that occurs during pregnancy and can lead to an increased risk of developing type 2 diabetes (T2D) later in life. Additionally, the disease poses great risk to pregnant women and their children. Despite the increase in the prevalence of GDM it yet remains a neglected issue, particularly in low- and middle- income countries.

Currently at 66 million, India is the second most prevalent country in the world with people living with T2D. Global estimates of pregnancies associated with hyperglycaemia were at 20.9 million, of which approximately 17.8 million being associated with GDM[1]. Over 5 million of these GDM cases were in India alone. Moreover, many of these women experience pregnancy related complications including high blood pressure, large birth weight babies and obstructed labour.

Source: IDF Atlas 6th edition, 2013

The IDF and the Abbott fund from the global healthcare company Abbott, together committed to raising this important health issue onto the global development agenda and improving pregnancy outcomes in women with GDM. This project had support from the local partners the Madras Diabetes Research Foundation (MRDF Chennai, India) who played an important role in implementation in surrounding semi-urban and rural areas of the city.

AIM OF THE WINGS PROJECT

The Women in India with GDM Strategy (WINGS project) is one of IDF's flagship projects which aimed to tackle the growing problem of GDM in low-resource settings.

This project aimed to provide a situational examination of the burden of GDM in India. It looked to establish a model of care using evidence-based guidelines for GDM treatment that could be applied in low-resource settings globally.

KEY ACCOMPLISHMENTS

This is a succinct report of the WINGS project on GDM after four successful years in Chennai (2012-2016).

1,126 women screened

247 cases of GDM identified

212 (95.8%) pregnant women followed throughout their pregnancy under the IDF GDM MOC*

203 (95.8%) successfully completed the follow up postpartum

6 collaborating clinics

* This presents a good opportunity for a T2D prevention project in women who experienced GDM as follow up rates in India after delivery are generally much lower (10-20% general follow up rate in post-partum women)

Key findings suggested that adverse maternal and neonatal outcomes, for example the numbers of obstructed labour and caesarean sections, were significantly reduced. As a result of this project dozens of healthcare professionals are now able to manage GDM in their clinics. Educational resources and protocols, such as the Wings Toolkit, are now available in the local languages; English; French and Spanish.

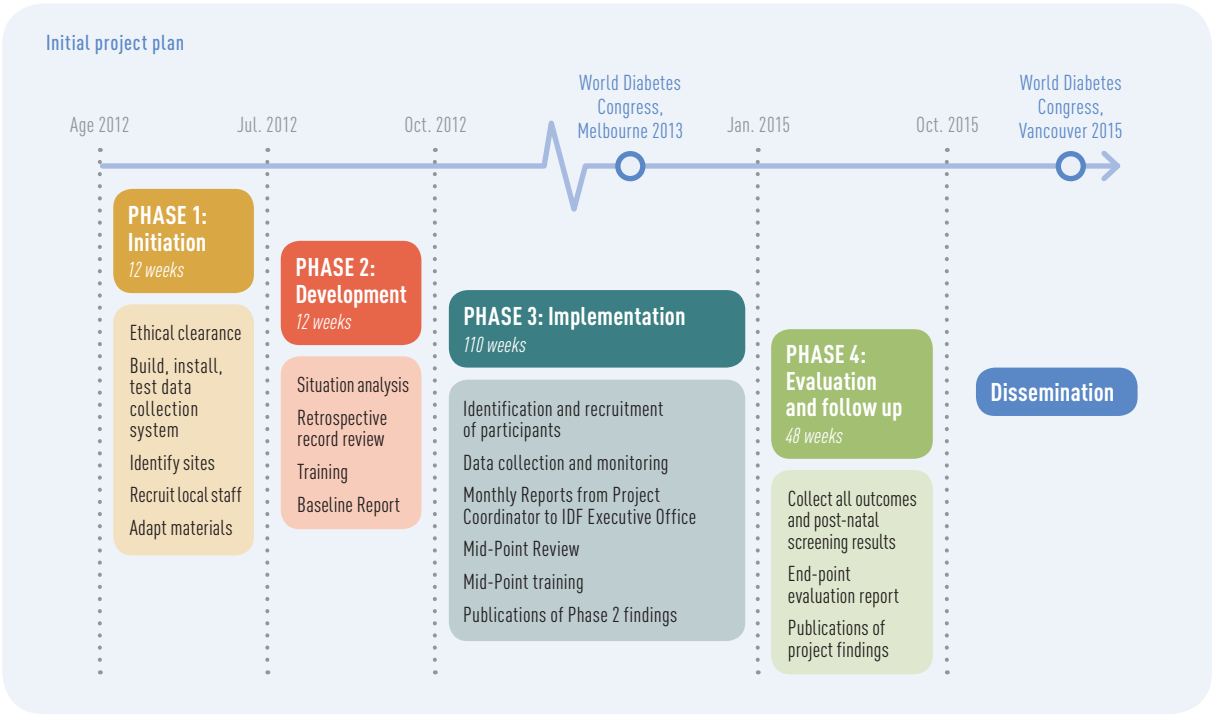
METHODS AND TIMELINE

This programme provided community-based interventions for women with GDM and educational material for health outreach workers. Over 2,100 pregnant women were involved in this project. An emphasis was placed on close patient-healthcare worker interaction.

>2,100 women involved in this project

>60 physicians trained on implementation

250 health workers involved in community outreach



PHASE 1: INITIATION

- Gaining ethical clearance to conduct studies
- Identifying sites and installing data collection systems
- Recruiting local workers and adapting resources and materials

PHASE 2: INITIATION

- Establishing a comprehensive **baseline analysis** of GDM models of care in India
- Training, engaging and mobilising healthcare providers, public health authorities and the broader community on the prevention and care of GDM
- Pilot screening study

1_ Literature review
2_ Retrospective review of medical records
3_ Healthcare professionals survey
4_ Knowledge Attitude Practice survey of women with/without GDM

BASELINE ANALYSIS

5_ Training of workers

PHASE 3: IMPLEMENTATION OF THE GDM MODEL OF CARE

- Initial testing of recruited pregnant women: testing involved a fasting oral glucose tolerance test (OGTT) and in cases where this was not possible, a non-fasting glucose challenge test followed by a OGTT as a definitive diagnostic test
- Providing women with GDM both individual and group education, guidance and care where appropriate
- Structured treatment programme for pregnant women to ensure safe delivery
- Six-weeks post-delivery check up – to monitor future risk of developing T2D

PHASE 4: EVALUATION AND FOLLOW UP

- Collecting outcome data
- Producing and evaluation report looking into the effectiveness of the MOC

FUTURE PHASE: ADAPTING AND ADVOCATING THIS MOC FOR OTHER LOW RESOURCE COUNTRIES

MRS RAZIYA, DIAGNOSED WITH GDM AT NINETEEN WEEKS OF GESTATION:

"When I was diagnosed with GDM, I was very worried about my child developing diabetes. I am now following a meal plan prescribed by the Doctor and my sugar levels are well under control. It is sometimes very difficult to follow the advice as most of the times I feel hungry soon after having the meal. Luckily, my husband is very strict about me following the diet plan. He is the only person who really supports me."

DEVELOPING THE BASELINE REQUIREMENTS FOR THE GDM MODEL OF CARE

LITTERATURE REVIEW

> 90 scientific sources
Reviewed from 1996 – 2012

- Capillary blood glucose feasible where OGTT is unavailable
- Need for universal screening & diagnostic cut-offs
- Diagnosis should be made from 24th week of gestation
- Reduce caloric intake in obese women by 30%
- Group meetings & family support
- Reccomended follow up of 6 weeks postpartum
- Counselling on diet & lifestyle

KEY REQUIREMENTS

CRITERIA FOR SCREENING

- ✔ Low cost
- ✔ No difficulty in preparation
- ✔ High sensitivity and specificity
- ✔ Short turn-around time
- ✔ Easy administration with minimal training
- ✔ Needs little maintenance

STANDARDS FOR MANAGEMENT

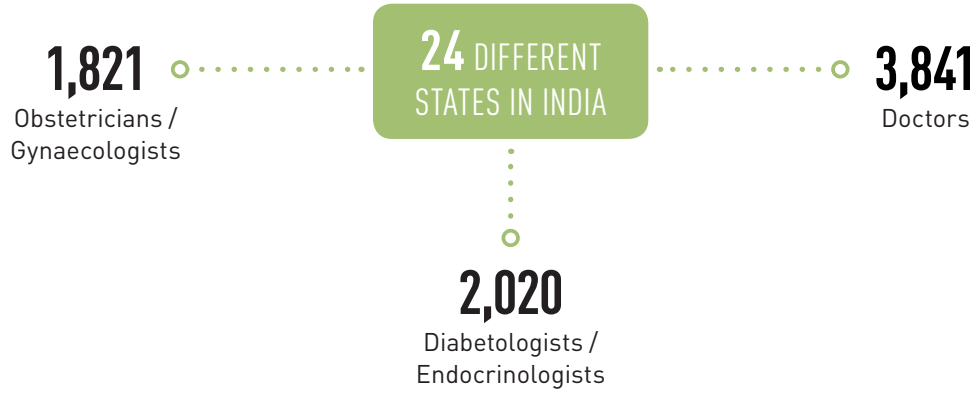
- ✔ Medical Nutrition therapy (MNT)al activity to improve glucose levels
- ✔ Insulin & Oral Hypoglycaemic Agents (OHA) for glycaemic control
- ✔ Breastfeeding – short-term and long-term benefits
- ✔ Follow up meetings

OVERCOMING BARRIERS TO TREATMENT

- ✔ Financial difficulties
- ✔ Culturally ingrained lifestyle
- ✔ Language and communication difficulties

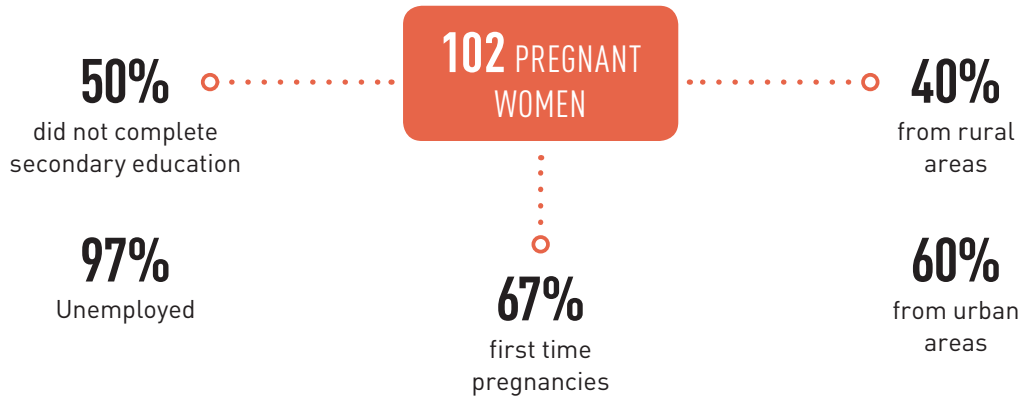
HEALTHCARE PROFESSIONAL'S SURVEY

KEY MESSAGE – This survey highlighted the need for proper training for healthcare professionals in global GDM screening and management.

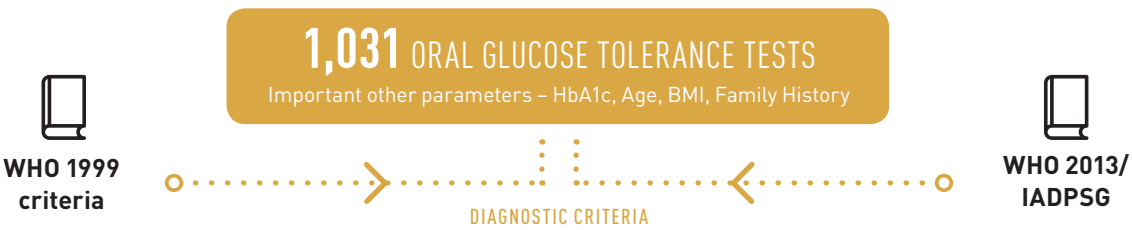


KNOWLEDGE ATTITUDE PRACTICE SURVEY OF WOMEN WITH GDM

KEY MESSAGE – This survey highlighted the need for a proper education regarding GDM and its consequences to the mother and baby.



PILOT SCREENING STUDY [January 2013 – November 2013]



IMPLEMENTATION OF THE MODEL OF CARE

OUTREACH EDUCATION PROGRAMMES

HEALTHY COOKING AND DIET TUTORIALS

- Anuradha Maternity Centre
- Punjab association Clinic
- Seethapathy Hospital

PRESS MEETINGS

RURAL PROGRAMMES

- Chunampet, October 2015
- 51 pregnant women took part and their family members

USING GAMES AS EDUCATIONAL TOOLS

- A "snakes and ladders" game was developed and used as an educational tool

PHYSICAL ACTIVITY WORKSHOPS

Regular activities & organised exercise during pregnancy

USE OF FLYERS AND POSTERS

AWARENESS ACTIVITIES

- Villages in Nilgiris Tamil Nadu
- Andhra Mahila Sabha Hospital, Chennai; 15 pregnant women and their caregivers took part

FIELD VISITS AND TRIPS

- Monthly visits to assist implementation

ADVOCACY
MANAGEMENT
PROMOTION
SUPPORT

MRS DHANYAPRIYA, DIAGNOSED WITH GDM AT EIGHT WEEKS OF PREGNANCY:

"When I was eight weeks pregnant, the Doctor told me that my blood sugar levels are too high. First I felt fear. But after consulting my new Dietician and Diabetologist I gained confidence.

I am now following a meal plan and engaging in physical activity. Both my husband and mother-in-law support me in following my diet plan. My Doctor advised me to walk 30 minutes every day. I felt so good afterwards that now I walk more than 40 minutes a day. I am managing to keep my blood sugar levels well under control."

EVALUATION OF THE MODEL OF CARE

KEY FINDINGS AND OUTCOMES OF THE WINGS PROJECT

*After implementation of the IDF WINGS MOC, there were a total of **11 scientific articles** published based on findings from the project. Additionally there were over 14 **oral and poster presentations** communicated at national and international event.*

SOURCE: At the 74th scientific sessions of the American Diabetes Association (ADA Congress 2014, San Francisco , USA)

Prevalence of gestational diabetes mellitus (GDM) in Asian Indians using the world health organization criteria and the international association of diabetes and pregnancy study groups criteria

AIMS – To compare the prevalence rates of gestational diabetes mellitus using the World Health Organization and the International Association of Diabetes and Pregnancy Study Groups Criteria in Asian Indian women.

CONCLUSIONS – Use of the IADPSG criteria results in almost 50% higher prevalence rates of GDM in Asian Indians. Moreover, the IADPSG and WHO 1999 criteria identify different individuals as having GDM.

DOI:10.4103/2230-8210.183469

Comparison of maternal and fetal outcomes among Asian Indian women with and without gestational diabetes mellitus

AIMS – Comparing different maternal and foetal outcomes among pregnant women with and without GDM.

CONCLUSIONS – Women with GDM had significantly higher caesarean sections, pre-eclampsia and macrosomia than women without GDM. However this was significantly reduced when women with GDM used insulin therapy.

Manuscript in preparation

Gestational weight gain and pregnancy outcomes in relation to body mass index in Asian Indian women

AIMS – To compare weight gain and outcomes in relation to obesity among pregnant women.

CONCLUSIONS – Normal and underweight women did not gain enough weight during pregnancy. Frequency of low birth weight babies is independent of maternal obesity. Generally, worse pregnancy outcomes are associated with maternal obesity.

DOI:10.1016/J.DIABRES.2016.04.050

Glucose tolerance status of women with gestational diabetes at 6 to 12 weeks postpartum

AIMS – To determine postpartum glucose tolerance in pregnant women with GDM.

CONCLUSIONS – Among Asian Indians rapid conversion to dysglycaemia occurs (even by 6-12 weeks postpartum). Therefore there is a need for a strategy to increase postpartum follow-up rates among women with GDM.

DOI:10.4103/2230-8210.189230

Methodology of the IDF women in india with GDM strategy (WINGS) Model of Care

AIMS – To develop a context adapted Model of Care to improve health outcomes in women with GDM and their babies in low and middle income countries.

CONCLUSIONS – The IDF WINGS Model of Care for GDM is a community- and facility-based intervention to address the need for better care for women with GDM. The project underscores the need for educating HCPs and the public regarding GDM and particularly about the improvement of postpartum follow up.

DOI:10.1111/JOG.13249

Pregnancy outcomes in women with gestational diabetes using the WINGS Model of Care

AIMS – To evaluate the WINGS model of care by comparing the maternal and foetal outcomes of women with GDM and women without GDM.

CONCLUSIONS – Proper GDM management through the WINGS model of care showed that women with GDM had similar maternal and foetal outcomes to women without GDM.

DOI:10.1016/J.DIABRES.2016.04.041

Physical activity patterns and gestational diabetes outcomes – the WINGS project

AIMS – To compare physical activity patterns in pregnant women with and without GDM and to assess the effect of an exercise intervention on changes in physical activity patterns, blood glucose levels and pregnancy outcomes in women with GDM.

CONCLUSIONS – A low cost culturally appropriate model of care can bring about significant improvements in physical activity in women with GDM. The increases in physical activity are associated with improved glycaemic control and a reduction in adverse neonatal outcomes.

DOI:10.1016/J.DIABRES.2016.04.050

Glucose tolerance status of Asian Indian women with gestational diabetes at 6 weeks – 1 year postpartum (WINGS – 7)

AIMS – To determine postpartum glucose tolerance in pregnant women with GDM.

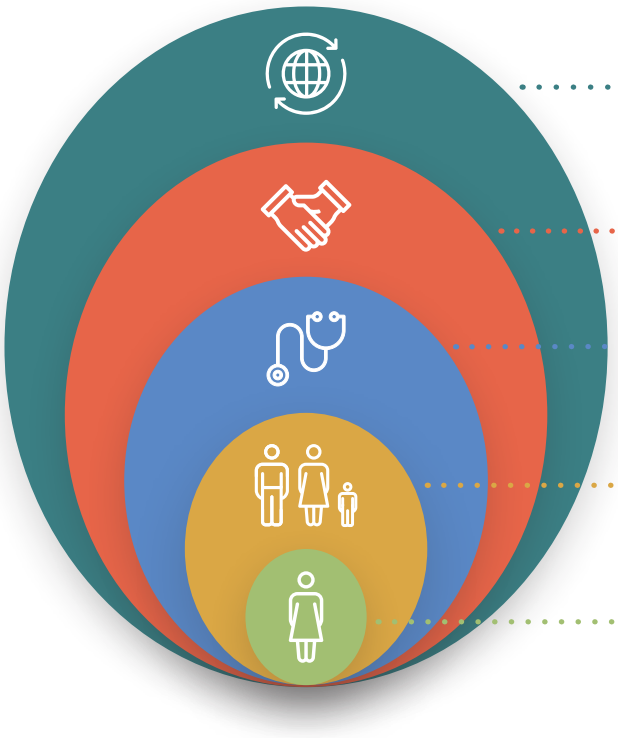
CONCLUSIONS – Among Asian Indians rapid conversion to dysglycaemia occurs (even by 6-12 weeks postpartum). Therefore there is a need for a strategy to increase postpartum follow-up rates among women with GDM.

THE FRAMEWORK OF THE MODEL OF CARE

The WINGS MOC was developed targeting the individual (pregnant women) their families, the health facility, community, and the global scientific audience.

- At the individual and family level, it aimed to build the awareness and education on GDM through one-on-one counselling, educational programs, and various educational materials. It also aimed to improve pregnancy outcomes
- 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 were trained with basic awareness and information about GDM. A separate training module was used for this purpose
- Global audience: The implementation of the model in India will help to provide insights and recommendations for improved care of women diagnosed with GDM in other low-resource settings.

Through scientific publications, the model will be disseminated and made available to the global community.



GLOBAL

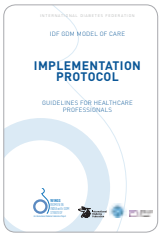
Dissemination and advocacy (Page 17) of the success of the GDM MOC to the global community through scientific publications (Pages 14-15), websites and social media and national/international workshops.

COMMUNITY

Education programs on GDM, targeting pregnant women, families and community health workers.

HEALTH SYSTEM

Capacity building of HCPs on GDM MOC, hand books on GDM MOC, training manuals, implementation protocol, information booklet for women with GDM.



FAMILY

Awareness about GDM and its complications, education programs on diet and physical activity.

INDIVIDUAL

Counseling on GDM and its complications, education booklet, SMBG.

DISSEMINATION

NATIONAL PROMOTION OF THE IDF MODEL OF CARE

NATIONAL WORKSHOP IN INDIA
Chennai 26-27th September 2015
Organised jointly by the IDF and MDRF

2 EXECUTIVE SESSIONS ON THE WINGS PROJECT AND MODEL OF CARE

- **23** local and national media groups
- **300** delegates
- **39** faculties

GLOBAL PROMOTION OF THE IDF MODEL OF CARE

IDF WORLD DIABETES CONGRESS 2015
WINGS Satellite Symposium
Vancouver Convention Centre

- The IDF GDM Model of Care was launched in front of an international audience
- Over 1,000 educational toolkit materials were distributed to attendees

The results from the WINGS Model of Care demonstrated impressive success in managing more than 85% of women with GDM without drugs and also showed a significant improvement in physical activity of women with GDM under GDM Model of Care.

MRS VEERAMMAL, DIAGNOSED WITH GDM AT THE SEVENTH MONTH OF HER THIRD PREGNANCY:

"My blood glucose levels were regularly monitored and they were normal until the diagnosis. At first I felt very sad. Nobody in my family has diabetes. So why me?

I often felt tired, dizzy and not able to do my day to day activities. The Doctor told me that the blood sugar levels should be back to normal after delivery while in some cases they may continue to be high.

Everyone around me was aware of my condition. But the mistake was mine. I was not able to follow proper diet during my pregnancy as I could not prepare food separately only for me.

Now I often feel very weak and tired due to my high blood sugar levels. I do regret for not following the Doctor's advice from the beginning."

THE WAY FORWARD

Three independent external experts concluded that, the major strong point of the IDF WINGS Model of Care is that there was a strong follow up rate among postpartum women with GDM. This required intensive effort and perseverance and created an opportunity to prevent the development of Type 2 Diabetes in these women.

1_ The local cultural practices of pregnant women after giving birth was a major challenge in getting women to attend follow up and postpartum screening

- Local community sensitization on the usefulness of follow up and postpartum screening is extremely important

2_ There was a strong need for refresher training sessions to ensure that new healthcare professionals were up to date

3_ Future adaptations of the IDF Model of Care should attempt to implement it into rural areas

- The WINGS project came across difficulties in gaining permission from local state health authorities in piloting the Model of care in rural areas
- Consistent communication between IDF, MRDF and local health authorities was key in overcoming this challenge

CONCLUSIONS

After implementation of the IDF Model of Care, women with GDM were found to have pregnancy outcomes comparable to women without GDM. These overwhelming positive results suggest that the IDF Model of Care was successful in preventing adverse outcomes in women with GDM. The Model of Care was adapted for implementation in Low- to Middle – income countries and local conditions. It was designed to be scaled up in other countries worldwide and is suitable for integration into existing maternal and child health systems.

The WINGS Model of Care for GDM offers a comprehensive package of tools for every level of care which includes guides for health care professionals providing care for women diagnosed with GDM, community health workers who follow up women in remote areas having limited medical access and also to pregnant women with educational games to improve awareness on GDM.

The full IDF GDM educational toolkit developed as part of the IDF Model of Care is available to download for free on the IDF website: http://www.idf.org/women-and-diabetes/resource-centre.

Additionally, adapted questionnaires on physical activity and food frequency and a case report follow up form are also available.

These outputs of the WINGS project represent the IDF strategy to tackle the rising prevalence of GDM in low – to middle- income countries. IDF are seeking financial and technical partners at both the international and national level to disseminate the IDF Model of Care in Asia and Africa.

DESIGN BY EX NIHILO

ACKNOWLEDGEMENTS

The WINGS programme was developed through a partnership between the International Diabetes Federation (IDF), the Madras Diabetes Research Foundation (MDRF) in Chennai, India, and the Abbott Fund, the philanthropic foundation of the global healthcare company, Abbott.

IDF is grateful to the Abbott Fund, the philanthropic foundation of the global healthcare company Abbott, for providing a full unrestricted grant to run this project.

Special thanks to Dr V. Mohan, the Principal Investigator, and his dedicated team at MDRF for his personal outstanding involvement in this project and the professional implementation work they have carried out.

We would also like to place on record our sincere thanks to the Health Secretary, Tamil Nadu state and the Director of Public Health for granting permission to carry out the project. We also thank our collaborating centres- Seethapathy hospital, Dr.Mohan Diabetes Specialities centre, Prashanth hospital, Anuradha Maternity Centre, Andhra Mahila Sabha Hospital and Punjab Association Clinic in Chennai city.

Finally, we thank the project teams at both IDF Executive Offices in Brussels and on the field in Chennai, India.