

A photograph of a woman and a baby. The woman is on the left, wearing a red and white patterned sari with a floral design. She has a bindi on her forehead and is smiling. The baby is on the right, wrapped in a red and white striped blanket, looking towards the camera. The background is dark and slightly out of focus, showing some household items.

# WINNING STRATEGIES

TO ADDRESS DIABETES  
**IN PREGNANCY:**

**AN ANTENATAL CARE APPROACH**



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## February 2018

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# INTRODUCTION

High blood sugar is one of the most common medical conditions associated with pregnancy. If left untreated, it can have an intergenerational impact, adversely affecting not just the health of the mother, but also that of the newborn. Dangers include increased risk of high blood pressure, uncontrolled blood loss, infection, abnormal weight gain of the unborn baby in the womb, congenital malformation, spontaneous abortion and intrauterine death.



Gestational Diabetes Mellitus (GDM), impaired glucose tolerance with the onset or first recognition during pregnancy, is the leading cause of high blood sugar in pregnancy, affecting approximately 18 million live births globally<sup>1</sup>. Globally, one in seven live births is affected

by GDM. According to the latest (2017) IDF Diabetes Atlas, 16.2 percent of live births had some form of hyperglycaemia in pregnancy. An estimated 86.4 percent of those cases were due to GDM. In South East Asia, though, the prevalence of hyperglycaemia in pregnancy is

estimated to 24.2 percent (which means nearly 20.9 percent GDM), or nearly one in five live births. Approximately 50% of the women with GDM develop type 2 diabetes within five years of their pregnancy<sup>2</sup> and children born to women with GDM are up to eight times more likely to

<sup>1</sup>International Diabetes Federation. IDF Diabetes Atlas, 7th edn. Brussels, Belgium: International Diabetes Federation, 2015 <http://www.diabetesatlas.org/>

<sup>2</sup>Kapur A. Links between maternal health and NCDs. Best Practice & Research Clinical Obstetrics & Gynaecology. 2015;29(1): 32-42 <https://www.readbyqxd.com/read/25199858/links-between-maternal-health-and-ncds>

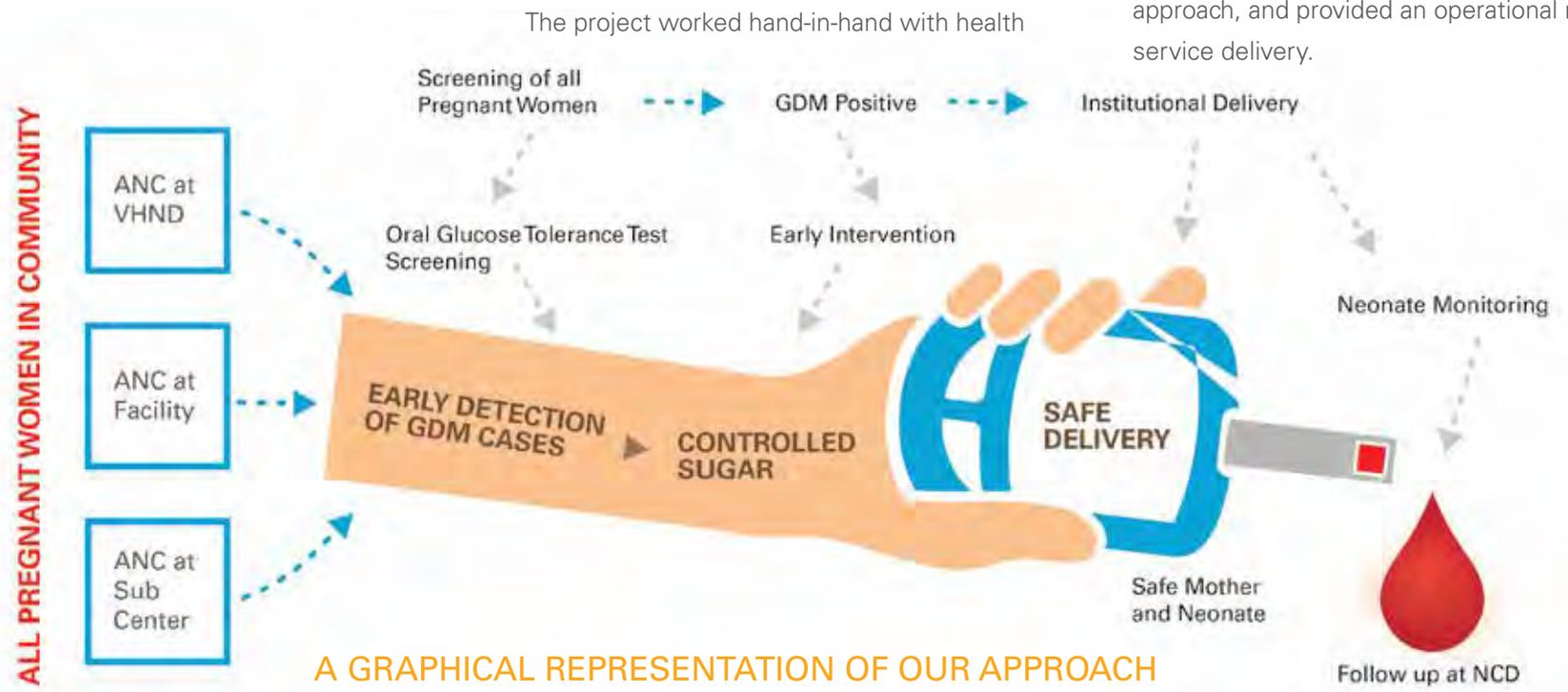
develop type 2 diabetes in early adulthood<sup>3</sup>.

Indian women are at a higher risk of GDM compared to the West, with one in every five pregnant woman likely to have GDM<sup>4</sup>. The Government of India, in December 2014, released the National Guidelines for Diagnosis & Management of GDM. Despite that, most pregnant women in India are still not being tested for GDM. Challenges in execution and countrywide roll-out exist.

It was in order to understand ground realities and bring learnings to enable universal GDM testing and treatment that Jhpiego, in collaboration with the Government of India and funded by an educational grant from Novo Nordisk, implemented a two-year demonstration project (November 2015 –October 2017) in Madhya Pradesh to “Operationalize an integrated Antenatal Care (ANC) based service delivery model for GDM screening and management, as envisioned in the National GDM guidelines”  
The project worked hand-in-hand with health

workers (Doctors, Staff Nurses, Lab technicians, counsellors) at the facility level as well as field based health service providers (Auxiliary Nurse-Midwives (ANMs) as well as Community Health Workers (ASHAs)) to integrate GDM services at all ANC service delivery platforms (from district hospitals, to sub-centers, to outreach sessions-VHSNDs).

The project demonstrated the feasibility of ANC-based GDM diagnosis and management approach, and provided an operational model for service delivery.



A GRAPHICAL REPRESENTATION OF OUR APPROACH

<sup>3</sup>Hod M, Kapur A, Sacks DA, et al. The International Federation of Gynecology and Obstetrics (FIGO) Initiative on gestational diabetes mellitus: A pragmatic guide for diagnosis, management and care. International Journal of Gynecology and Obstetrics. 2015; 131:S173 [www.ncbi.nlm.nih.gov/pubmed/26433807](http://www.ncbi.nlm.nih.gov/pubmed/26433807)

<sup>4</sup>National Guidelines for diagnosis and management of gestational diabetes mellitus; 2014 [http://www.nhm.gov.in/images/pdf/programmes/maternal-health/guidelines/National\\_Guidelines\\_for\\_Diagnosis\\_&\\_Management\\_of\\_Gestational\\_Diabetes\\_Mellitus.pdf](http://www.nhm.gov.in/images/pdf/programmes/maternal-health/guidelines/National_Guidelines_for_Diagnosis_&_Management_of_Gestational_Diabetes_Mellitus.pdf)

# WINNING STRATEGIES

The program adopted certain strategies which helped institutionalize GDM diagnosis and management in the ANC service delivery platforms, helped overcome obstacles and contributed to the success of the program.

*This photobook attempts to highlight those winning strategies and provide a glimpse of the program's impact on people, systems and processes.*

What merits mention is that along with these strategies, the program also developed resource material, built capacity, and ensured availability of logistics and essential commodity supply. Also, regular supervision and mentoring of the service providers contributed to the successful implementation of this program.



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# PROGRAM GOAL AND OBJECTIVES

The goal of the program was to demonstrate the feasibility and effectiveness of a functional and integrated antenatal care-based GDM screening approach as outlined in the National GDM guideline in Hoshangabad, the selected district of Madhya Pradesh.

**01**

To introduce universal GDM screening in accordance with the new national guidelines.

**02**

To ensure women who screen positive for GDM receive appropriate referral, treatment and follow-up support.

**03**

To ensure appropriate documentation and dissemination of evidence and implementation tools, and advocate with state and national experts and officials from the Ministry of Health and Family Welfare (MoHFW) for subsequent scale-up at the state and national levels.

**04**

To increase community awareness of GDM in the catchment population of 7 community health centers (CHCs) and 25 primary healthcare centers (PHCs).

# IMPACT

## 1. DEVELOPMENT OF RESOURCE MATERIAL:

- Facilitator's guide, reference manuals and job aids developed for capacity building of **ASHAs, ANMs, Staff Nurses and Medical Officers**.

## 2. ENSURING AVAILABILITY OF ESSENTIAL SUPPLIES:

- **75g glucose pouches** procured and supplied up to the **Sub Health Center(SHC) level**
- **Glucometer strips Lancets, measuring jar, disposable glasses, spoons** and **calibration fluid**: supplied up to SHC
- **Glucometers** procured and supplied as per National guidelines
- **ASHAs** oriented to inform pregnant women to bring drinking water, glass and spoon from homes at VHSNDs to ensure safety

## 3. CAPACITY BUILDING OF PROVIDERS:

- **1079** ASHAs, **89** ASHA Sahyogini, **216** ANMs and Supervisors, **98** Staff Nurses, **52** doctors, **30** Laboratory Technicians, **10** facility level counselors trained.



## 4. SCREENING AND MANAGEMENT OF GDM:

Key achievements till November 2017:

- **22691 (84%)** ANC clients screened for GDM
- **2092 (9%)** Pregnant women (PW) diagnosed with GDM
- **2072 (99%)** women with GDM managed with Medical Nutrition Therapy (MNT) and exercise
- **1122 (54%)** GDM positive women tested for follow-up blood sugar after initial two weeks of starting MNT
- **300 (27%)** pregnant women referred for insulin therapy post follow up due to uncontrolled sugar after MNT
- **699** GDM positive women delivered at health facility
- **9 (1%)** deliveries of GDM positive women had complications



## Dr. Dinesh Baswal

Deputy Commissioner-Maternal Health, MoHFW,  
Government of India

“Gestational Diabetes Mellitus, also known as ‘GDM’, is associated with maternal and neonatal morbidity and mortality; and poses a high risk of developing type 2 diabetes in both mother and the newborn. With a vision to provide holistic care during, pregnancy, labour and the postpartum period, Ministry of Health & Family Welfare with technical support from Jhpiego initiated a pilot project on GDM diagnosis and management in one district of Madhya Pradesh. During program implementation, many challenges were faced which were solved out at facility/district/state level. The pilot has brought out great learnings, which would help us to scale up the critical intervention across other states of the country.”





**RECOGNITION**

In July 2017, the GDM Pilot project was showcased at the 4<sup>th</sup> National Summit on “Good and Replicable Practices and Innovations in Public Healthcare Systems in India” that was held at Indore, Madhya Pradesh between July 6 to 8, 2017. The Summit was organized by the National Health Mission, MoHFW, Government of India, with the objective of sharing

and learning from the good practices and innovations adopted by different states. Attended by senior officials from the Health Ministry, Principal Secretaries, Mission Directors of states and health experts from across the country, the Government of Madhya Pradesh’s Nodal person for Maternal Health presented this project, sharing its importance, strategy, progress and important learnings.



## Ms Gauri Singh (IAS)

Principal Secretary Health,  
Government of Madhya Pradesh

“Amongst other causes of maternal & child morbidity & mortality, Gestational Diabetes Mellitus (GDM) is a serious public health problem with adverse effects on mother and child. In consonance with the National Guidelines for Diagnosis & Management of GDM by Ministry of Health and Family Welfare, all pregnant women should be tested for GDM during their antenatal visits, a prerequisite to minimise the ill effects of uncontrolled GDM on the mother & child.”





### INTEGRATION OF NON COMMUNICABLE DISEASES (NCD) PREVENTION AND CARE WITH THE MATERNAL HEALTH (MH) SERVICE DELIVERY PLATFORM

Quality antenatal care (ANC) is the foundation of good maternal health service delivery. In India, antenatal care has seen great improvement in coverage in the past two decades. Leveraging the advantage of this well-established ANC platform, the program worked to integrate GDM testing into within this platform in Hoshangabad. All the postpartum women who were GDM positive during their pregnancies were linked to the operational NCD clinic for further follow up. Interdepartmental coordination had been developed between Maternal Health and NCD departments for supplies and logistic support, which plays a critical role in GDM program implementation.

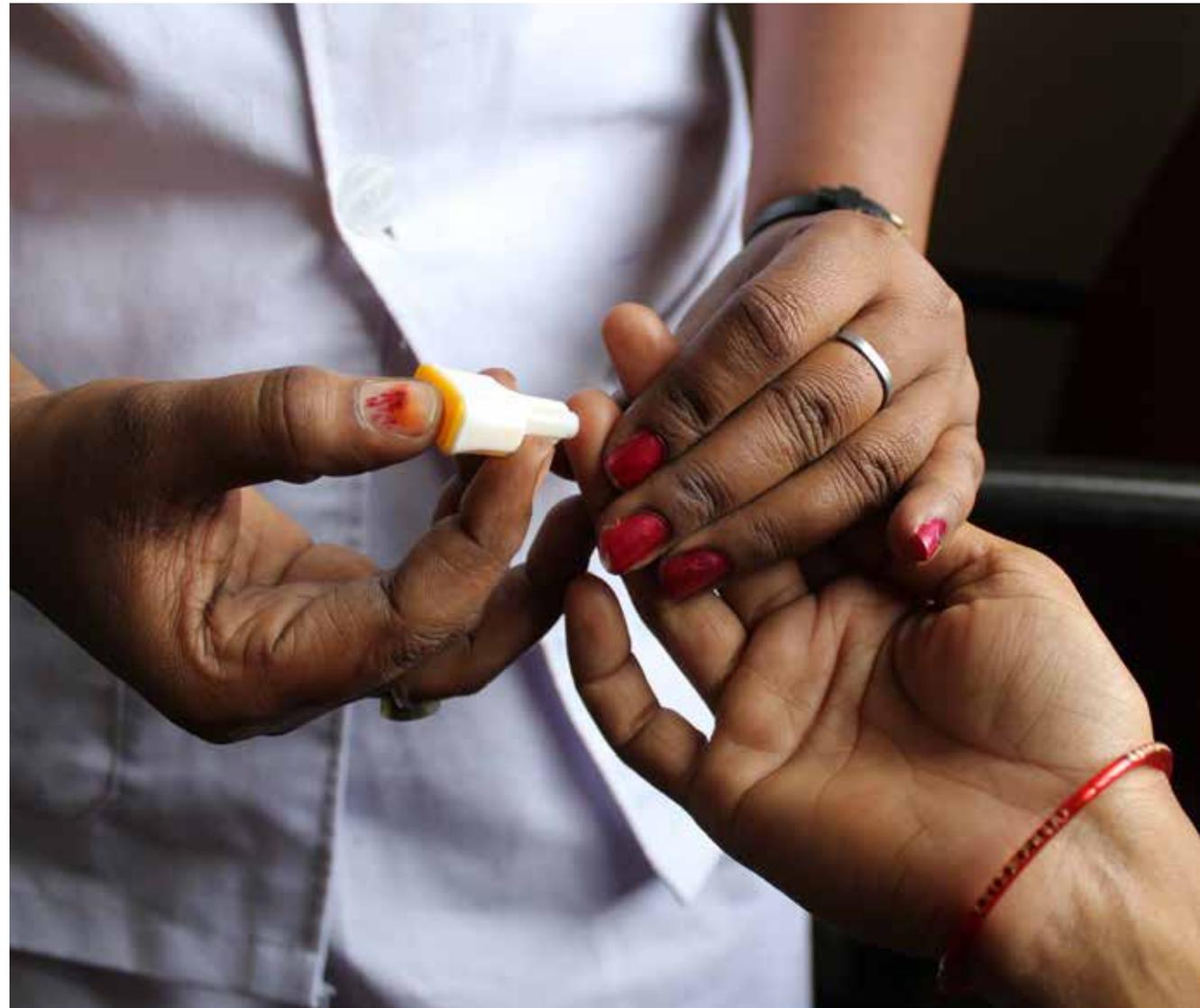




## Rikke Fabienke

Senior Global Access to Care Manager at Novo Nordisk

“To ensure a healthy future for all, we must use all means to improve maternal health and prevent and control Non Communicable Diseases (NCDs). Testing pregnant women for gestational diabetes (GDM) offers a unique opportunity to do both: we can improve pregnancy outcomes and intervene when the onset of diabetes and other NCDs in both mother and child can still be prevented or at least postponed.”



## SINGLE CONTACT SERVICE DELIVERY

**It has been observed that while a large number of pregnant women visit the health facility for at least one antenatal check-up (83%), there is a sharp decline in the numbers that complete the cycle of antenatal care (51%)<sup>1</sup>**

To ensure optimal coverage of GDM testing and treatment, this program adopted a single contact service delivery approach to enable pregnant women to get tested, counselled and begin their treatment – all within a single contact.

The packaging of services was done accordingly. A pregnant woman was tested for GDM using the Oral Glucose Tolerance Test (OGTT). If she tested positive, she received counselling and the management of her condition started that very day, using Medical Nutrition Therapy (MNT). This ensured provision of two out of the three components of the program: testing, MNT



and insulin therapy in a single visit.

To establish this single contact service delivery system, Jhpiego ensured that the facility was prepared, had the requisite supplies and the health workers were trained in not just testing women for GDM, but in being able to counsel and educate them about MNT, which is the first level of management of GDM. If the blood glucose levels of a woman who is on MNT remains high ( $\geq 120\text{mg/dl}$ ), she is referred to the facility Medical Officer (MO), who has already been trained on insulin therapy under the project. After assessing the woman, MO starts insulin the same day and counsels her to also continue with MNT. Alongside, community workers were trained and motivated to send pregnant women at an appropriate time to the hospital and to VHSND sessions so that they could get GDM testing done, get test results, counselling services and treatment all on the same day, avoiding multiple and repeated visits to the health facility.

This strategy not only reduced the burden on the women to return repeatedly to the facility, but also eased the pressure on the health system.



<sup>1</sup>Derived from NFHS 4 data



## Dr. Pallavi Jain Govil (IAS)

Commissioner Health,  
Government of Madhya Pradesh

“Within the same hospital facility, if a woman is coming for the antenatal check-up, she now also gets tested for diabetes without having to go to a separate clinic. This has been integrated. The Hoshangabad district pilot project is extremely relevant to us because the learnings from that will help us in scaling it up to the rest of the state.”



### ADOPTING EFFECTIVE COUNSELLING TECHNIQUES

Right from its inception counselling was identified as a key pillar of this program.

This is because counselling has a role to play at almost every step. It starts right from a pregnant woman and her family understanding the significance of getting her sugar tested and the risks involved for the woman and her baby in case of high blood sugar during pregnancy. As per the protocol for GDM diagnosis, a pregnant woman has to take the Oral Glucose Tolerance Test (OGTT), where she is required to drink 75 grams of glucose solution and wait for two hours at the facility before being tested, two times during her pregnancy. If she is tested positive for GDM, the pregnant woman needs to visit the health facility every fortnight in her second trimester and every week in her third trimester to regularly monitor her blood sugar levels. This can be quite a tedious exercise with high chances of her dropping



off the schedule if she doesn't understand the significance of keeping her sugar under control. This was ensured through quality counselling.

In order to strengthen counselling services, Jhpiego built the capacity of various cadres within the health care system at the facility as well as the community level, including doctors, nurses, Auxiliary Nurse Midwives (ANMs) and Accredited Social Health Activists (ASHAs). With the ASHAs and ANMs vigorously trained in effective communication and counselling, respectively, they played complementary roles. While the ASHA, along with job aids and flipbooks developed by Jhpiego, would make a contact with the pregnant woman prior to the Village Health Sanitation and Nutrition Days (VHSNDs), communicating with the pregnant women and their families about the importance of GDM testing, the ANM would reinforce the same messages at the VHSND or the health center. This made it easier for the pregnant women to understand the importance of the two hours waiting time and if tested positive, counselling helped women diligently follow the medical nutrition therapy and regularly visits the facility for follow ups.





## Dr. Archana Mishra

Deputy Director, Maternal and Neonatal Health, NHM,  
Madhya Pradesh

“Community Health Workers play an important role in not only disseminating information about the program but also for identification of cases and subsequent management. ANMs and other outreach workers from sub-center/PHC also periodically visit mothers who are on treatment for GDM in their area and ensure that mothers with GDM follow the advice of MNT and medical management. Community link workers like ASHAs help in spreading the awareness of the disease and mobilize those who are diagnosed and also accompany them to follow-up visits. The multi-pronged approach to providing support to the client in terms of regular testing, counselling, and lifestyle modifications has proven to be extremely beneficial for the client and has been the cornerstone of this program for reduction of maternal and infant mortality.”





## FIELD VOICES

# Mothers-in-Law:

THE NOT-SO-SWEET SPOT OF  
SCREENING MOTHERS-TO-BE  
FOR HIGH BLOOD SUGAR

Administering a simple finger-test to check pregnant women for high blood sugar is the easy part of Chandra Rajan's job as a nurse at the Community Health Center Babai, a 30-bed facility serving a large tribal population from a number of villages in central India.

The trickier task is convincing mothers-in-law of mothers-to-be that the test—which involves a two-hour wait after drinking a sugar solution—is worth everyone's while.

Having practiced nursing for three decades, Rajan, 53, is undaunted by obstacles, whether familial, cultural or clinical. She's wholly committed to screening all her patients for Gestational Diabetes Mellitus (GDM), a common and dangerous condition. Despite its prevalence in India, where it affects 10 to 14 percent of pregnancies<sup>1</sup>, diagnosis and treatment for GDM is hardly the norm here.

Not yet, at least.



*“Initially, women would not agree for this (glucose) test. If the woman agreed, her mother-in-law would not. They were reluctant to wait for two hours.”*

“We learned during our training that it is mandatory to test every antenatal woman for GDM,” Rajan says.

The initiative’s success rests squarely on nurses like Rajan as well as Auxiliary Nurse Midwives and community health workers: So far, more than 400 health workers and more than 1,100 community workers have been trained, resulting in more than 22,600 women being tested for GDM in Hoshangabad district.

The ultimate goal is helping every woman avoid GDM’s complications that can cause everything from spontaneous abortion and intrauterine death to lifelong disease. For many nurses and midwives, this means learning new counselling skills and competencies in addition to acquiring the supplies necessary for detection and treatment.

Priyanka Rajput, an auxiliary nurse midwife based at Community Health Center Itarsi, has discovered that a universal GDM testing effort can mean dealing with roadblocks that are equally widespread.

Powerful but compassionate leadership on the part of midwives and nurses is critical to generate awareness and demand for GDM testing. Auxiliary Nurse Midwife Rajput, for instance, visits communities near her health center throughout the week, personally reaching out to a population of about 15,000 as she provides primary care to women and children from varied backgrounds.

*“Our efforts over the past year have resulted in women and families becoming quite aware of the need to test for sugar during pregnancy,” she says. “Women who get tested also talk about its benefits to others in the community and this helps in generating awareness and acceptance for this test. The motivational factor is the wellbeing of their unborn. Every mother wants to give birth to a healthy baby and stay healthy herself.”*

### TRANSLATING MEDICAL NUTRITION THERAPY FROM THEORY TO PRACTICE

GDM positive women require counselling on Medical Nutrition Therapy (MNT), exercise and regular blood sugar follow-up. With the ANMs lacking a nutritional background and the existence of differential eating habits, low buying capacity and limited availability for food options at the village level, ANMs were not able to individualize MNT counselling. To overcome the snag, Feeding Demonstrators (FDs) from the Nutrition Rehabilitation Centres located at Community Health Centre (CHC) level were involved in the program. The feeding demonstrators counselled the GDM positive women on various lifestyle modifications, including diet modifications as per their eating habits and buying capacities, and provided alternatives while

maintaining the calorie and nutrition component. Staff Nurses as well as community health workers counselled GDM positive women to continue MNT and exercises post their delivery and informed them about the dates for their postpartum sugar testing.

MNT counselling requires calorie calculation of each GDM positive woman, which is time consuming and involves difficult calculations. To simplify this, a ready reckoner for calorie calculation was prepared and provided to all ANMs and FDs. Once the calorie requirement of GDM positive woman was known, she was counselled on MNT using the sample meal plans, which were prepared based on locally available food and eating habits. These job aids helped her adopt MNT easily, without having to change her eating habits significantly. Along with MNT, she also received counselling for physical exercise using the flipbook provided to the ANM.

For those GDM positive women who were required insulin therapy along with MNT, counselling was equally crucial. Service providers counselled the women on the dosage and technique of self-injecting insulin. During counselling, each GDM positive woman was provided with a GDM card and one nutrition booklet to monitor her progress and treatment compliance. The woman was taught to fill the nutrition booklet as per the meals she consumed, which was monitored by the health worker for further modification or continuation. Besides monitoring, these documents also provided a rich source of information on GDM.





## Smt. Mukta Nagre

Feeding Demonstrator  
District Hospital, Hoshangabad  
Madhya Pradesh

"I feel great. I feel I am truly being able to serve people with my expertise. I had joined this field because of my interest in nutrition – counselling people what to eat, preparing diet charts for them for better health. This changed for the past few years, I had got disconnected with what I was trained to do. This changed when I was involved in the GDM program and when I started diet counselling. I got a lot of satisfaction. I feel I am back in my field, using the skills I had been trained for."



## SUCCESSFULLY ENGAGING WOMEN FOR THE TWO HOUR WAIT

The Oral Glucose Tolerance Test (OGTT) requires a client to consume a solution of 75 gms of glucose with water. The time of drinking the solution is noted and the client then needs to wait for two hours to perform the prick test to check sugar levels.

In District Hoshangabad, it was observed that either husbands or mothers-in-law accompanied most pregnant women visiting the facilities. In both cases, there was resistance to wait that long. While the husbands did not want to lose their daily wage, the mothers-in-law felt it wasted their time away from household work. Additionally, women previously tested negative for GDM were reluctant to sit through the two hours the second time.

The program developed strategies to overcome this roadblock and engage women and their families for the period required for the test willingly.

- **Advance information by ASHAs:** ASHAs were oriented to inform pregnant women a day prior to the VHSND sessions and apprise them about the time taken for the GDM test so that the women would come with time at hand and mentally prepared for the wait.
- **Routing:** The routing system at the facility was done in a way that as pregnant women came into the facility, they were first made to drink the 75 gms glucose solution and then sent for their other ANC consultations and tests. This helped in gainfully using the two hours that they needed to wait before being tested for GDM.

- **Counselling:** The program prioritized counselling, and strengthened counselling skills among healthcare providers at the facility and community level. This enabled the pregnant mothers and their families to understand the adverse impacts of GDM, and therefore, the importance of the glucose test and further management, if diagnosed with GDM.
- **Counselling and referral by Medical Officer:** Doctors in the outpatient department counselled all pregnant women for GDM testing, and instructed them to show the test report before leaving, leading to compliance as a response.
- **Counselling by ASHA and ANM on importance of the second test:** Flipbooks and IEC posters were provided as job aids to help providers provide better understanding of GDM, its impact and management to the women. This helped in keeping them on-GDM women and their families vigilant on going for the second test during pregnancy.
- **Counselling on other health issues:** Healthcare providers were encouraged to utilize the two hours waiting time for counselling the pregnant women on breast feeding, personal hygiene, family planning and child immunization.
- **Making audio-visual (A/V) aids available at the facility level:** A/V aids like television sets with cable connection were made available at the focus facilities to help engage the women and families during the wait time.



## Dr. Dilip Katailiha

CMHO Hoshangabad,  
Madhya Pradesh

"I knew that if we succeeded in keeping the client at the facility for 2 hours (required for OGTT), then this program will would succeed. To make her stay for those two hours, we could counsel her for proper diet, family planning, or other things that would hold her interest. The idea was to gainfully occupy her for those 2 hours, so that we could get her true blood sugar level by testing her after those 2 hours."



### ENSURING FUNCTIONALITY OF GLUCOMETERS FOR ENABLING ACCURATE GDM TESTING

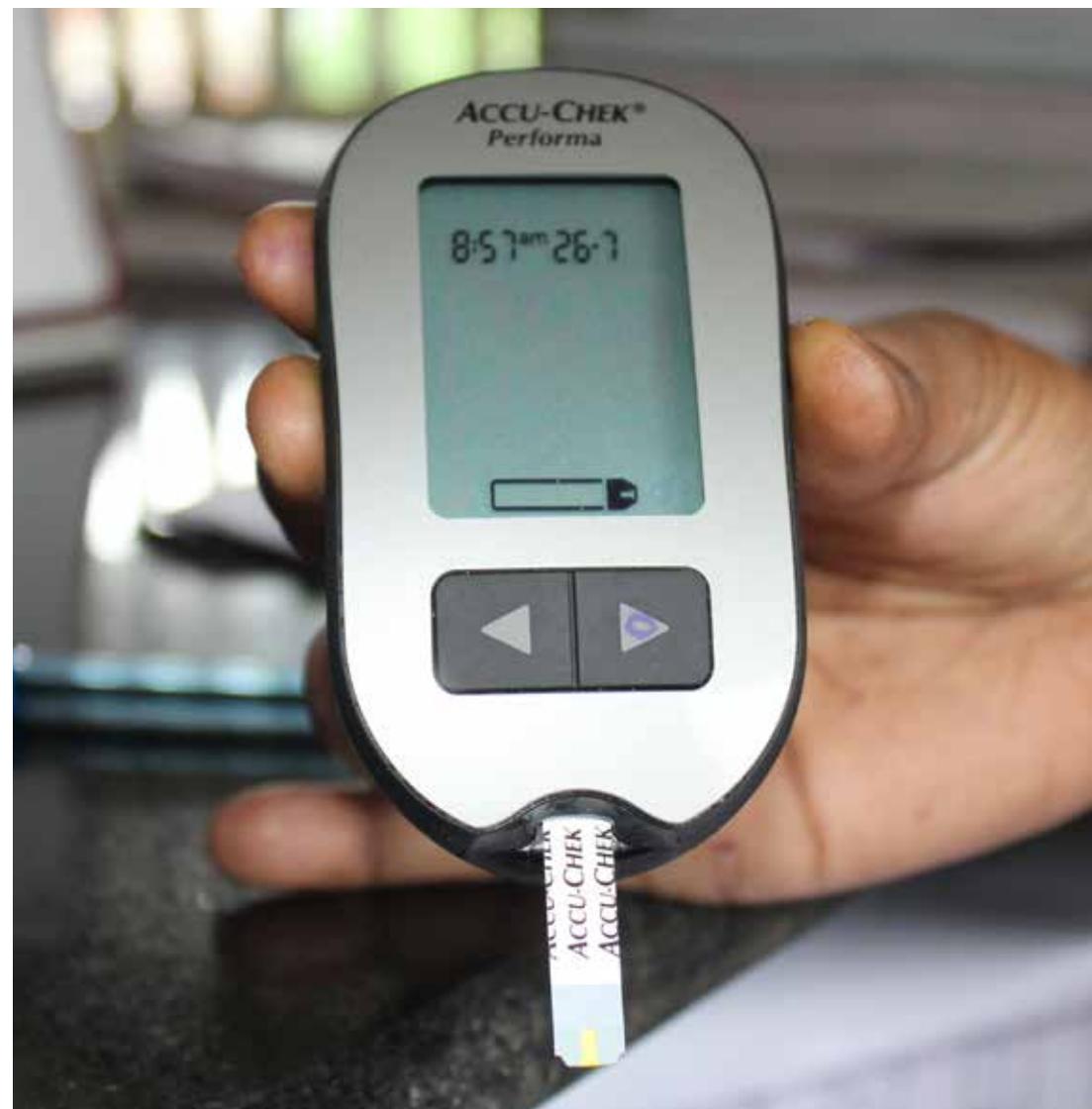
One of the most important aspects of GDM testing is the availability of glucometers. Glucometers were distributed to all ANMs and facilities as per the program requirement. Glucometer use reduces the time for testing and provides blood sugar results within seconds.

For correct functioning and valid results, regular calibration of glucometers and storage of test strips under suitable conditions is required.

A system for regular calibration of glucometers was established and strengthened through uninterrupted supply of calibration fluid up to the Primary Health Center (PHC) level. Alongside, the capacity of the Laboratory Technician (LT) was built in calibration, record maintenance and tracking ANMs for monthly calibration. Information regarding calibration was shared with field ANMs, LTs and program managers during training and then implementation of the process was monitored through records maintained at the facility level. The ANM monthly meeting platform was utilized for this purpose.

Distribution of calibration fluid up to the PHC level. enabled the field staff to get their glucometers calibrated in between these meetings, if required.

Through this process correct functioning of the device and validity of test results was ensured.

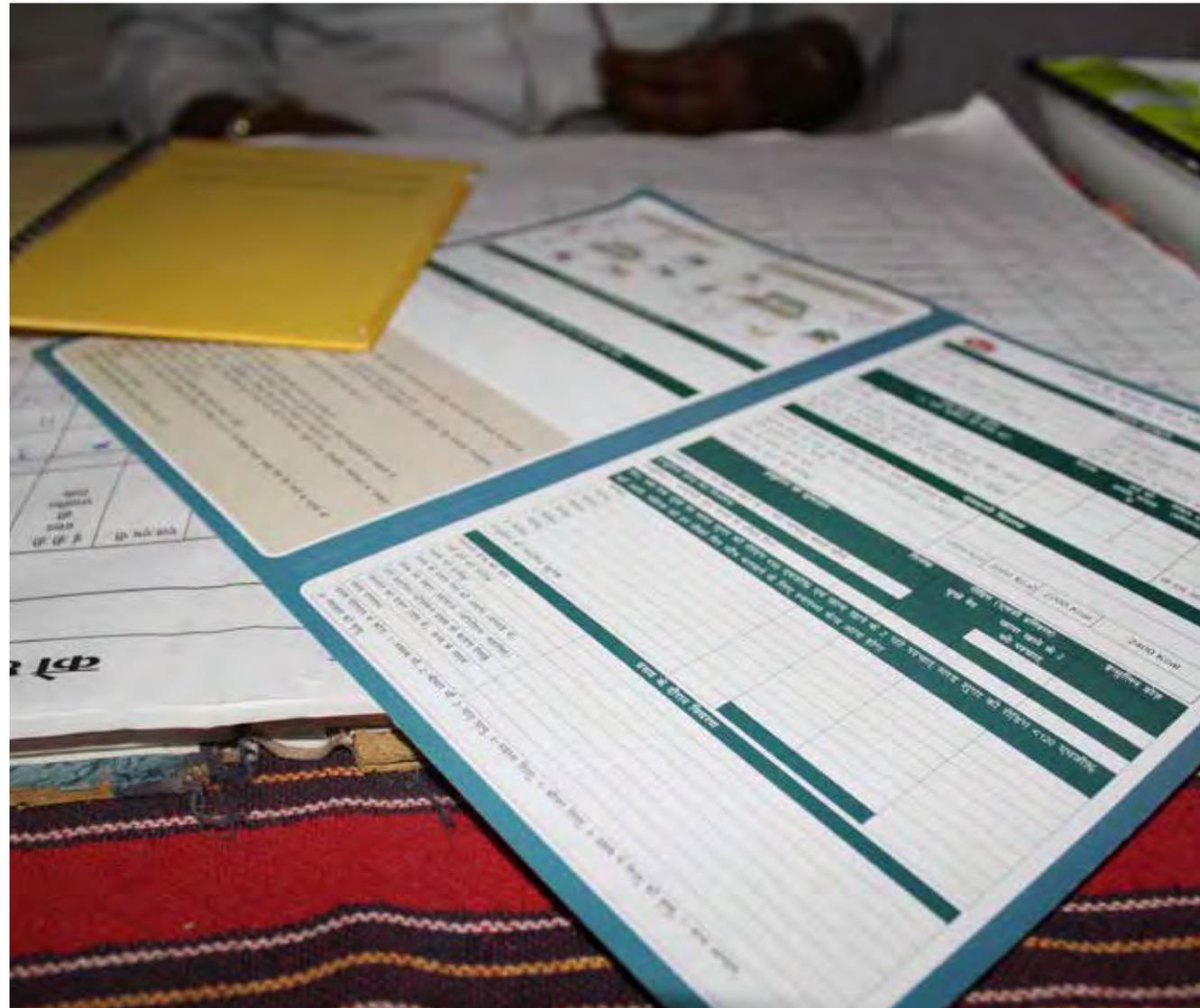




## Dr. Pallavi Jain Govil (IAS)

Commissioner Health,  
Government of Madhya Pradesh

“When we run a pilot in a district, we look for learnings like logistics, material management, supply of diagnostics, and supply of essentials like glucose. These are all critical elements. While we might issue a directive in policy, what is it that the facility needs to enable its implementation! These are the things that come out from a pilot—the learnings. There we are able to identify the critical gaps in our infrastructure and in the processes which lead to outcomes. So the devil lies in the detail of looking at these issues and then addressing them for the whole state.”



## REMOVING BARRIERS TO INSULIN THERAPY

Insulin is the recommended medical treatment for GDM if Medical Nutrition Therapy does not effectively manage raised blood sugar. The insulin dose is calculated as per the sugar level of the client and corresponds with the diet she is prescribed to follow. Still, despite significant study that uncontrolled levels of blood sugar could be fatal for both mother and child, doctors were found to be hesitant in prescribing insulin therapy with the fear that the pregnant woman might face hypoglycaemia—a dangerous condition due to low blood sugar.

Therefore, the state took an initiative with Jhpiego's support to train all Medical Officers (MO) in insulin management. Senior experts from Medical Colleges were called to orient MOs on various types of insulin, the role of insulin in GDM management, how to calibrate the dose of insulin, as well as management of hypoglycaemia and other side effects. Various case scenarios, small group exercises, brainstorming sessions were also conducted. The participants had various queries and doubts that were clarified to make them confident in prescribing insulin to GDM positive women as per the guidelines. Training results were evident in the increase in number of GDM clients initiated on insulin.

The program hit another roadblock when it was found that women in the rural areas in and around the program district of Hoshangabad were not comfortable in self-injecting the insulin dose to lower their high blood sugar levels. Owing to their low educational background, the pregnant women and their families were apprehensive about injecting the insulin dose accurately without any side effects.



Responding to this, Staff Nurses and ANMs were trained to demonstrate the right technique of self-injecting insulin using job aids. To add more comfort, the Staff Nurses and ANMs gave the insulin to the clients at the facility and while demonstrating the procedure of insulin injection, they also counselled the women on the do's and don'ts of self-injecting the insulin.

Note: Through project advocacy and bringing in global evidence on use of oral anti-diabetic drug (Metformin), the Gol is now introducing Metformin as a part of medical management of GDM in its revised GDM guidelines.



## Dr. Dilip Katailiha

CMHO Hoshangabad,  
Madhya Pradesh

“We organised an insulin workshop for Medical Officers (MOs). For a plain MBBS doctor giving insulin is not an easy task. There is risk of low blood sugar level after insulin injection. This is all covered in PG course. So we organised an insulin workshop for sector MOs who work in the peripheries. We invited an Associate Professor from the medical college who gave a lecture on insulin. Now every doctor feels confident in prescribing insulin after training. This is also one big achievement for us.”

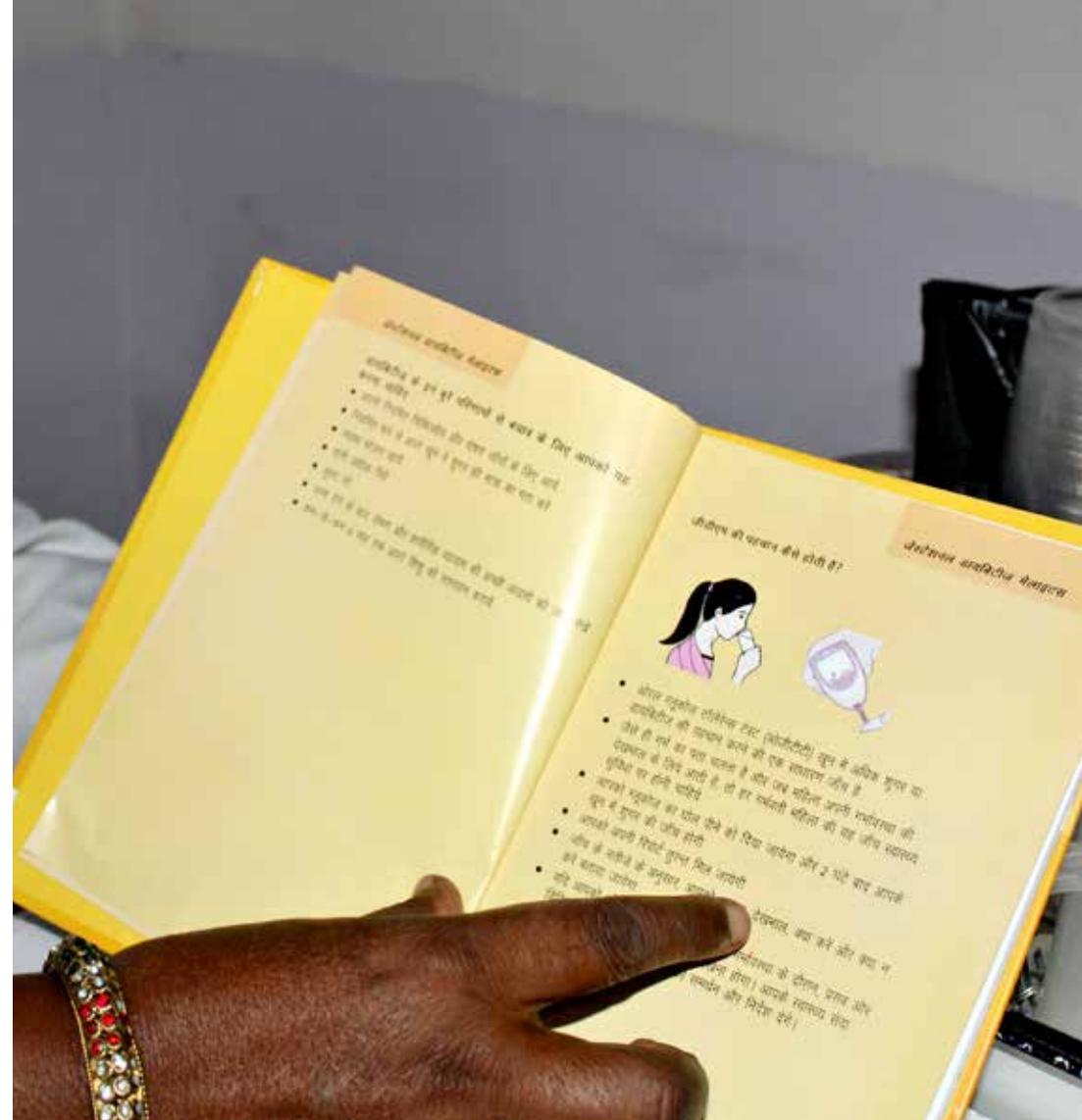


## DEVELOPMENT OF SIMPLIFIED JOB AIDS

Job aids with pictorial descriptions provide a brief summary of instructions that need to be followed in order to adhere to a protocol of laid down practices. They help in reducing errors and increasing adherence. To ensure that service providers adhere to the National Guidelines for Diagnosis & Management of Gestational Diabetes Mellitus, job aids for GDM were developed by Jhpiego for each of the cadres of healthcare workers, who would be interacting closely with the clients.

As per the recommendations made in the 'National Guidelines', a pregnant woman tested positive for GDM must start the MNT immediately. Healthworkers who can prescribe MNT are doctors, Staff Nurses or ANMs. The nutrition recommendations should consider the woman's staple diet and locally available food products. In order to create sample meal plans, the health worker needs to calculate individual calorie requirements for each woman. This posed to be a challenge for Staff Nurses and ANMs as they found it difficult to perform these complex calculations to arrive at the individual calorie requirements, especially with multiple priorities, like a large patient load waiting to be served and other services demanded of these cadres. To overcome this hurdle, a ready reckoner was prepared using Indian Council of Medical Research's (ICMR) formula for calculating calorie requirement according to the level of physical activity, age of woman (18-60 years) and weight (from 40-100 kgs).

It was also realized that the food items recommended in the ICMR's meal plan were not staple to Hoshangabad and were not readily available in the district. To overcome this problem, village level meetings with pregnant women, community health workers and local people were conducted and



after a couple of these meeting a food compendium based on the local eating habits was prepared. This food compendium with district specific meal plans was translated in calorie specific meal plans with the help of experienced dieticians. The exercise helped serve the need of 90% of the clients with higher levels of blood sugar in the district.



# Smt. Mukta Nagre

Feeding Demonstrator  
District Hospital, Hoshangabad  
Madhya Pradesh

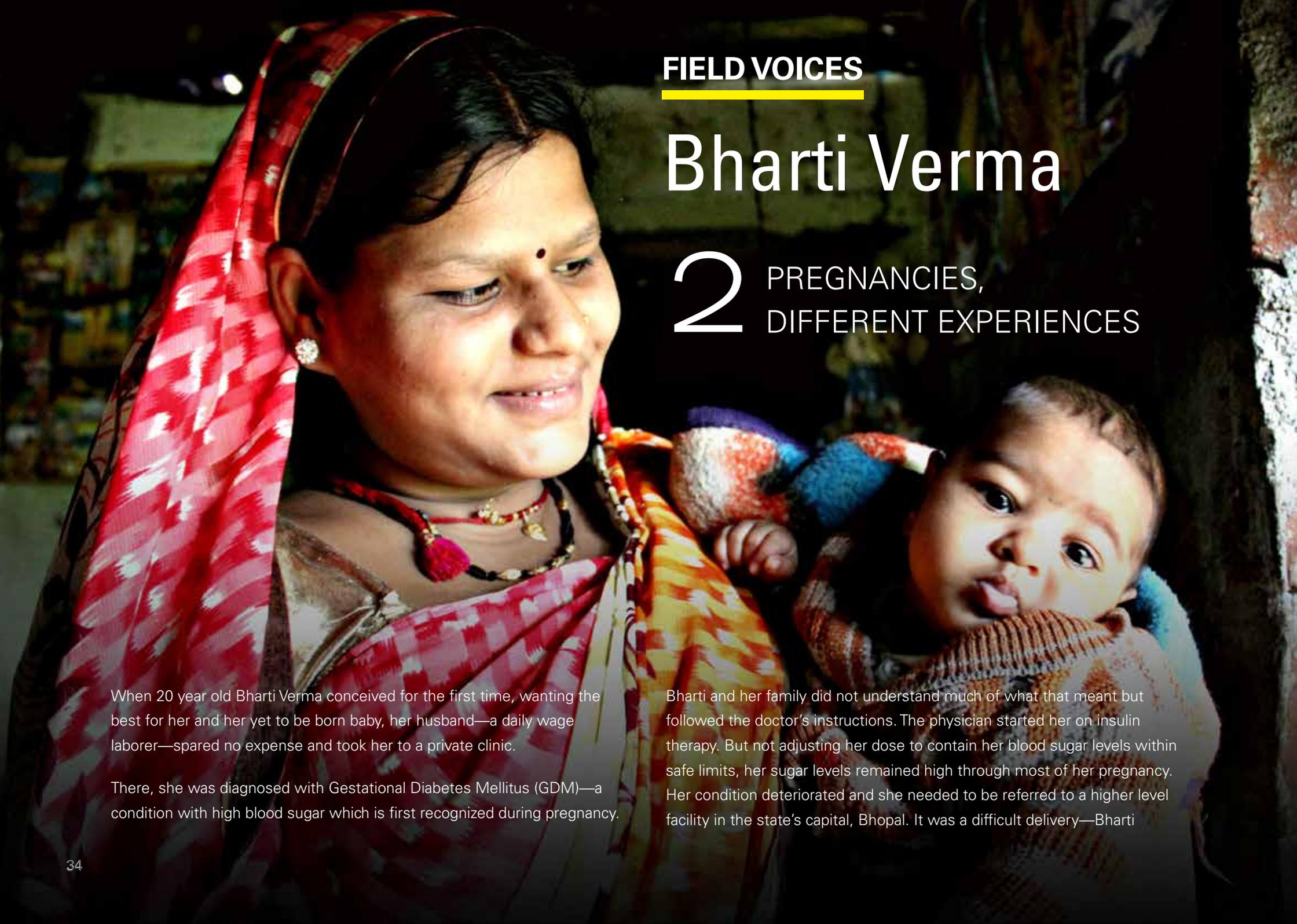
“The fact that the clients’ diet doesn’t need drastic changes and is in keeping with their food habits is a big advantage and makes it easy for the clients to follow. See, we get all kinds of clients here. Some are financially weak and cannot afford expensive food items. Some live in interior parts of the state and cannot get much variety in their food other than what is locally available. So, we customize a client’s diet based on their needs and limitations, so that it is easy for them to follow it. This is what we learnt from the training and it is helping us tremendously in our counselling”.

1800 Calories Suggested Sample Meal Plan for Women with GDM in Hoshangabad

Meal and Snack	Food Items	Approximate amount	Serving
Breakfast 7-8 am	Almond AND	3-4	1
	Salted upma (namkeen halua) OR	½ cup	1
	Salted dalia OR	½ cup	1
	Roti AND	½ roti 6" diameter	1
Snack 10 am	Dal OR sabzi	½ cup dal/subzi	1
	Moong dal sprout (Ankurit moong) OR	½ cup	1
	Besan cheela OR Moong dal cheela OR	1, 6" diameter	1
	Poha OR dalia OR	1 cup	1
Lunch 1-2 pm	Chooru with milk without cream OR	2 spoons choora in 1 cup milk	1
	Watermelon OR Muskmelon OR	1 cup	1
	Gustari OR Apple	1 full	1
	Roti	2	1
Snack 4-5 pm	Roti + rice	1 roti + ½ cup rice	1
	Subzi OR	2 cup	1
	Dal OR	½ cup	1
	Fish/chicken/egg/paneer OR	1 piece, 1 egg, ½ cup paneer	1
Dinner 7-8 pm	Khichdi	1½ cup	1
	Curd	½ cup	1
	Salad	½ cup	1
	Roti	2	1
Snack at bedtime	Seasonal fruit (watermelon/muskmelon) OR	1 cup	1
	Guava/Apple OR	1 full	1
	Salted upma with vegetables (namkeen halua) OR	½ cup	1
	Poha with vegetables OR	1 cup	1
Total oil to be used to cook the food	Besan/moong dal cheela OR	1, 6" diameter	1
	Milk without cream boiled	1 cup	1
	Sabzi	1 cup	1
	Dal OR fish/egg/chicken OR	1 cup	1
Total oil to be used to cook the food	Khichdi	2 cup	1
	Salad	1 cup	1
	Milk without cream boiled	1 cup	1
	3 teaspoons/day		

2000 Calories Suggested Sample Meal Plan for Women with GDM in Hoshangabad

Meal and Snack	Food Items	Approximate amount	Serving
Breakfast 7-8 am	Almond AND	4-6	1
	Salted upma (namkeen halua) OR	¾ cup	1
	Salted dalia OR	¾ cup	1
	Roti AND	¾ roti 6" diameter	1
Snack 10 am	Dal OR sabzi	¾ cup dal/subzi	1
	Moong dal sprout (Ankurit moong) OR	¾ cup	1
	Besan cheela OR Moong dal cheela OR	1, 6" diameter	1
	Poha OR Dalia OR	1½ cup	1
Lunch 1-2 pm	Chooru with milk without cream OR	3 spoons choora in 1 cup milk	1
	Watermelon OR Muskmelon OR	1 cup	1
	Guava OR Apple	1 full	1
	Roti	2	1
Snack 4-5 pm	Roti + rice	2 roti + ½ cup rice	1
	Subzi	2 cups	1
	Dal OR	1 cup	1
	Fish/chicken/egg/paneer OR	1 cup, 1 egg, ½ cup paneer	1
Dinner 7-8 pm	Khichdi	2 cups	1
	Curd	¾ cup	1
	Salad	1 cup	1
	Roti	2	1
Snack at bedtime	Seasonal fruit (watermelon/muskmelon) OR	1½ cup	1
	Guava/Apple OR	1 full	1
	Salted upma with vegetables (namkeen halua) OR	¾ to 1 cup	1
	Poha with vegetables OR	1 cup	1
Total oil to be used to cook the food	Besan/moong dal cheela OR	1, 6" diameter	1
	Milk without cream boiled	1 cup	1
	Sabzi	1 cup	1
	Dal OR fish/egg/chicken OR	1 cup	1
Total oil to be used to cook the food	Khichdi	2 cup	1
	Salad	1 cup	1
	Milk without cream boiled	1 cup	1
	4 teaspoons/day		

A woman with dark hair, wearing a red and white patterned sari and a red necklace, is looking down at a baby she is holding. The baby is wearing a brown and white patterned sweater. The background is dark and textured.

## FIELD VOICES

# Bharti Verma

## 2 PREGNANCIES, DIFFERENT EXPERIENCES

When 20 year old Bharti Verma conceived for the first time, wanting the best for her and her yet to be born baby, her husband—a daily wage laborer—spared no expense and took her to a private clinic.

There, she was diagnosed with Gestational Diabetes Mellitus (GDM)—a condition with high blood sugar which is first recognized during pregnancy.

Bharti and her family did not understand much of what that meant but followed the doctor's instructions. The physician started her on insulin therapy. But not adjusting her dose to contain her blood sugar levels within safe limits, her sugar levels remained high through most of her pregnancy. Her condition deteriorated and she needed to be referred to a higher level facility in the state's capital, Bhopal. It was a difficult delivery—Bharti



delivered pre-term through a caesarean section. Her baby girl had to be hospitalized right after birth as the doctors found a hole in her heart.

*As per the National Guidelines for Diagnosis & Management of GDM (Dec 2014), undiagnosed or inadequately treated GDM can lead to significant maternal and fetal complications, including congenital malformation in the infant.*

One and a half years later, Bharti conceived again. The family, still burdened with the debt they accrued during her first pregnancy, decided to visit the District Hospital-Hoshangabad, a government hospital where her maternity care would be free. Yet again, she tested positive for GDM. But, as Bharti recalls, things felt different this time.

When Ms. Manjula, the Auxiliary Nurse Midwife (ANM), diagnosed Bharti with GDM using a single step Oral Glucose Tolerance Test (OGTT), she along with the nutrition expert, Ms. Swati Dubey, counselled Bharti, explaining in detail the meaning of her condition. They asked her to follow a specific kind of diet as prescribed in the Medical Nutrition Therapy of the National GDM Guidelines. They also gave her some simple physical exercises, which would further help in controlling her blood sugar levels. The ANM also referred her to Dr. Jitendra More, Medical Officer, who prescribed a dose of insulin and adjusted the dose regularly, keeping a close vigil on her sugar levels throughout her pregnancy.

Ms. Hemlata Sangiya, Staff Nurse, taught Bharti the step-by-step technique of injecting the insulin using a job aid. This committed team of providers, who provided medical treatment along with lifestyle modification counselling, helped Bharti wade through her second pregnancy smoothly, with her blood sugar levels well under control. Bharti gave birth to a healthy baby boy.

*Bharti talks about the difference in her experience during her two pregnancies—  
“Due to the GDM program in my district, I was saved a lot of trouble. During my first pregnancy, I had to go to a private provider, where my family had to spend a lot of money on blood investigations and treatment, and even then my sugar levels were not in control. I think my elder daughter suffers from this disease because of my uncontrolled sugar levels.”*

Bharti is among thousands of pregnant women in Hoshangabad, who are benefitting from this program. So far, 22,691 pregnant women have been screened for GDM at least once and 2092 (9%) of them have tested positive for GDM. These women are being cared for by a team of trained providers who are working diligently to ensure that neither these women, nor their newborns, suffer due to uncontrolled sugar levels during pregnancy.

Bharti Verma with her two children at her home





## Dr. Bulbul Sood

Country Director, Jhpiego India

“Jhpiego has been fortunate to collaborate with Government during the formulation of the GDM guidelines, and thereafter, with support from an educational grant from Novo Nordisk, worked with the Government to demonstrate the operationalization of an integrated antenatal care (ANC)-based service delivery model for GDM screening and management as envisioned in the national GDM guidelines. Along with introducing universal screening of diabetes in pregnancy using a single-step Oral Glucose Tolerance Test in accordance with the national guidelines, the program is working towards increasing community awareness about diabetes in pregnancy through ASHAs and ANMs, ensure appropriate referral, treatment and follow-up support for all women diagnosed with GDM at PHC and Community Health Centre levels, and document and disseminate the learnings to the rest of the country.

I am glad that this pilot has helped in garnering due attention towards diabetes in pregnancy.”

Photo Credit: Jhpiego and Novo Nordisk



Winning Strategies to address diabetes in pregnancy: an antenatal care approach

February 2018

Jhpiego- a Johns Hopkins University affiliate

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