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Consultant Obstetrician & Gynecologist at Navi Mumbai

Vice Chairman, Indian College of Obstetrics & Gynecology ( 2018)  
& Chairman Elect 2021

VICE PRESIDENT Federation of Obstetrics and Gynecological Societies of India ( 2015)

Treasurer, PCOS Society Of India

Chairperson Medical Disorders of Pregnancy Committee of FOGSI ( 2006-2008)

Founder Secretary & Past President Of Navi Mumbai Obstetric & Gynec Soc.

Joint Secretary FOGSI ( 2005)

Gold Medal in F.C.P.S. Exam./ Sir G. M. Masani Prizes for Best Research paper 1981/1982/  
Dr DK Dutta Award for best Journal Publication in FOGSI(2005)

Ultrasonography/ Maternal Medicine/ Fetal Medicine/ High Risk Pregnancy



# Gestational Diabetes

Dr Uday Thanawala  
MD, DGO, FCPS, DNB.

18 th Symposium of Cambodian Gynecology and Obstetrics  
on “ Maternal and Newborn Health “  
22-23<sup>rd</sup> November 2019

# Changing Priorities for Mankind



THEN..



Now

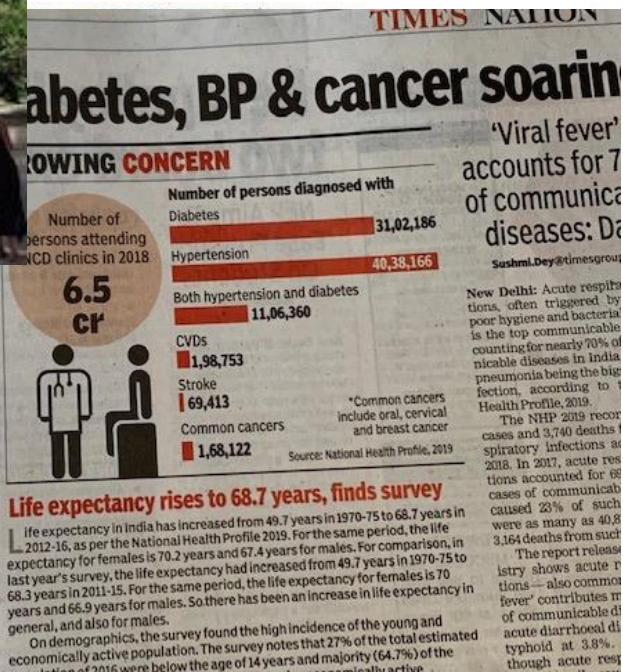


**Twenty-first Century  
More deaths due to NCD &  
Obesity**

**New Delhi:** India is witnessing accelerated rise in the prevalence of chronic non-communicable diseases (NCDs) like hypertension, diabetes and cancer. Out of 6.51 crore people diagnosed at state-run NCD clinics during 2018, over 40 lakh were detected with hypertension, more than 31 lakh with diabetes, whereas over 11 lakh people were suffering from both hypertension and diabetes.

Besides, another 2 lakh were diagnosed for other cardiovascular diseases and 1.68 lakh with common cancers, the National Health Profile, 2019 released by health ministry shows. The data shows number of people visiting these NCD clinics for screening almost doubled in one year from 3.5 crore in 2017 to 6.5 crore in 2018. The higher number of screening and detected cases shows increase in awareness as well as disease burden, public health experts and officials said.

While the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and



# *Homodeus – a brief history of tomorrow*

Yuval Noah Harari

- 2012 – 56 million deaths
- 620000 died due to human violence
- 800000 committed suicide
- 1.5 million died of diabetes – ***sugar is more dangerous than gun powder***

Yuval Noah Harari  
New York Times Bestselling  
Author of *Sapiens*



## Homo Deus

A Brief History  
of Tomorrow

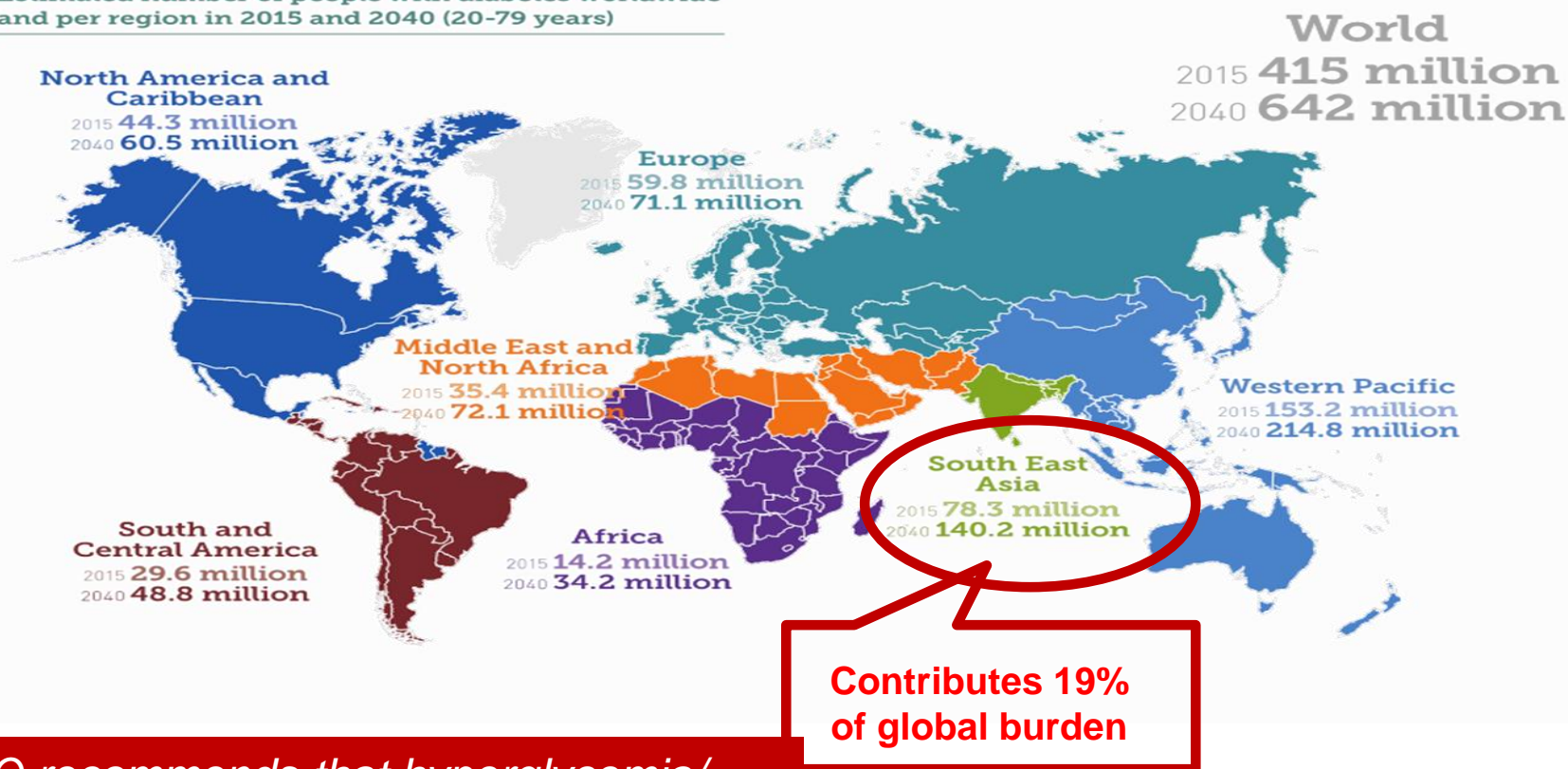
# Diabetes: A global emergency

Some  
numbers

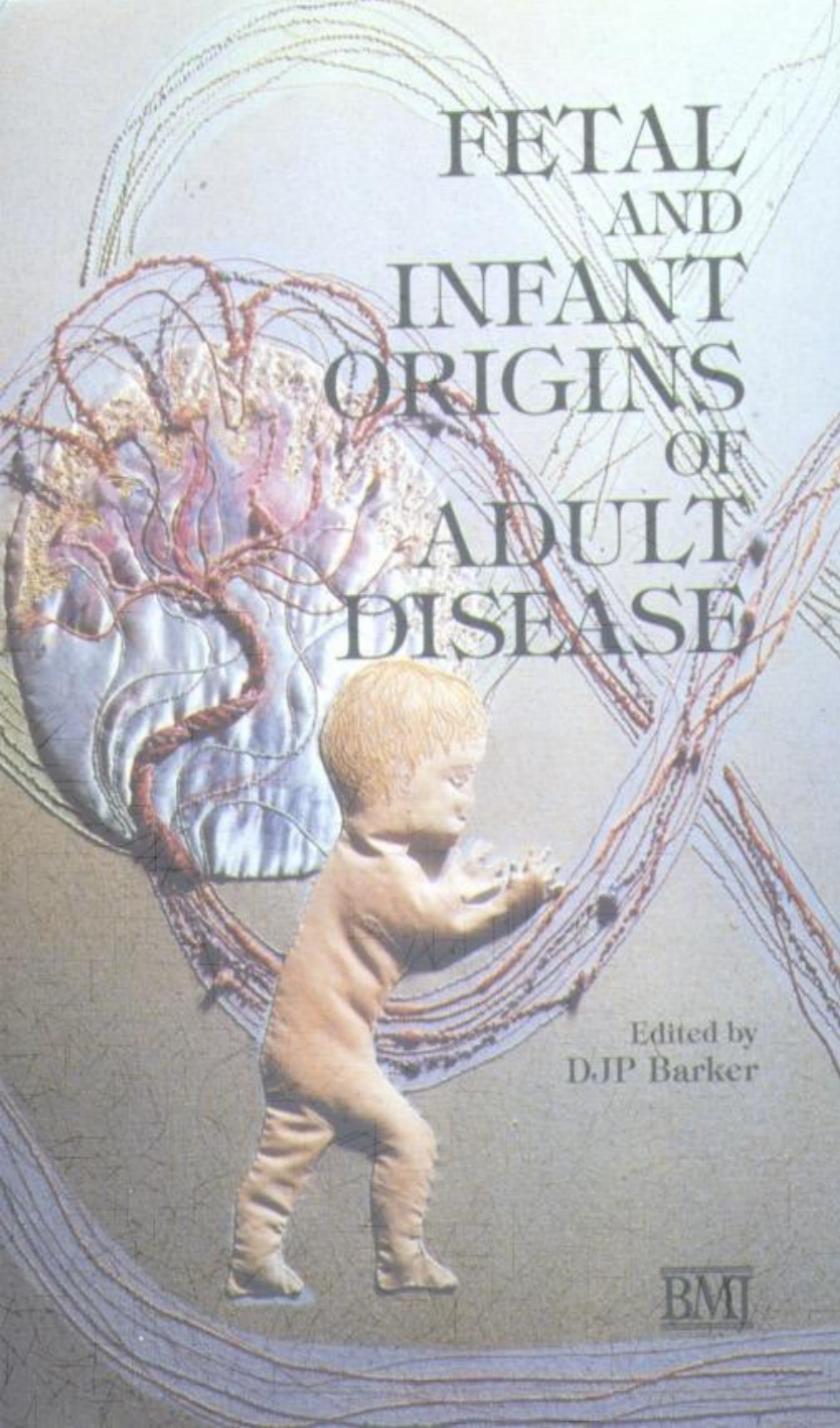


International  
Diabetes  
Federation

Estimated number of people with diabetes worldwide  
and per region in 2015 and 2040 (20-79 years)



*FIGO recommends that hyperglycemia/  
Gestational Diabetes Mellitus (GDM) be  
considered a global health priority*



FETAL  
AND  
INFANT  
ORIGINS  
OF  
ADULT  
DISEASE

Edited by  
D.J.P. Barker

BMJ

FETAL ORIGIN  
OF  
ADULT DISEASE

**Maternal health – impacts NCD burden  
Foetal Programming IUGR and Macrosomia**

Maternal under nutrition  
Maternal stunting  
Anaemia  
Malaria  
Other medical conditions



Maternal overweight / obesity  
Diabetes  
Excess weight gain during pregnancy

Barker's Hypothesis  
Low birth weight

Predisposes  
development  
of HTN,  
Type 2 DM  
& IGT

Pederson's hypothesis  
Macrosomia

**Solution**  
Optimal birth weight  
3000 – 3500 g.

# It all starts with a healthy pregnancy

- ***Prenatal period a window of opportunity for prevention of childhood obesity & adult diabetes***



# Where we were a decade back -

- Lack of awareness :
- Importance of diagnosing & treating GDM
- Incidence of GDM in our population
- Controversies in testing -

*Whom to test?*

*When to test ?*

*Which test?*

# Incidence in our population :

Chennai -17.8% women in urban,13.8% in semi urban,9.9% in rural areas.

**Prevalence of gestational diabetes mellitus in South India (Tamil Nadu)--a community based study.**

Seshiah V et al Diabetes Care and Research Institute, Chennai 600 010. **J Assoc Physicians India.** 2008 May;56:329-33.

King et al. (16), in 2005, reported on diabetes in Cambodia – 5% (rural) and 11% (semiurban).

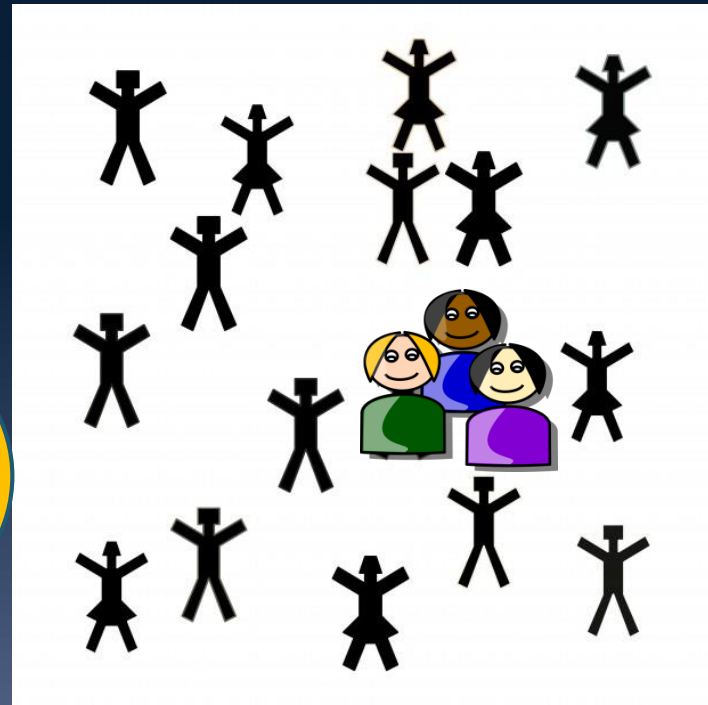
*King H, Keuky L, Seng S, Khun T, Roglic G, Pinget M. Diabetes and associated disorders in Cambodia: two epidemiological surveys. Lancet 2005;366:1633–1639pmid:16271644*

# FIGO recommends universal testing

In India alone, an estimated 5 million women have GDM/year

One out of five pregnancies have Diabetes - HIP

Global  
21 million  
GDM per year



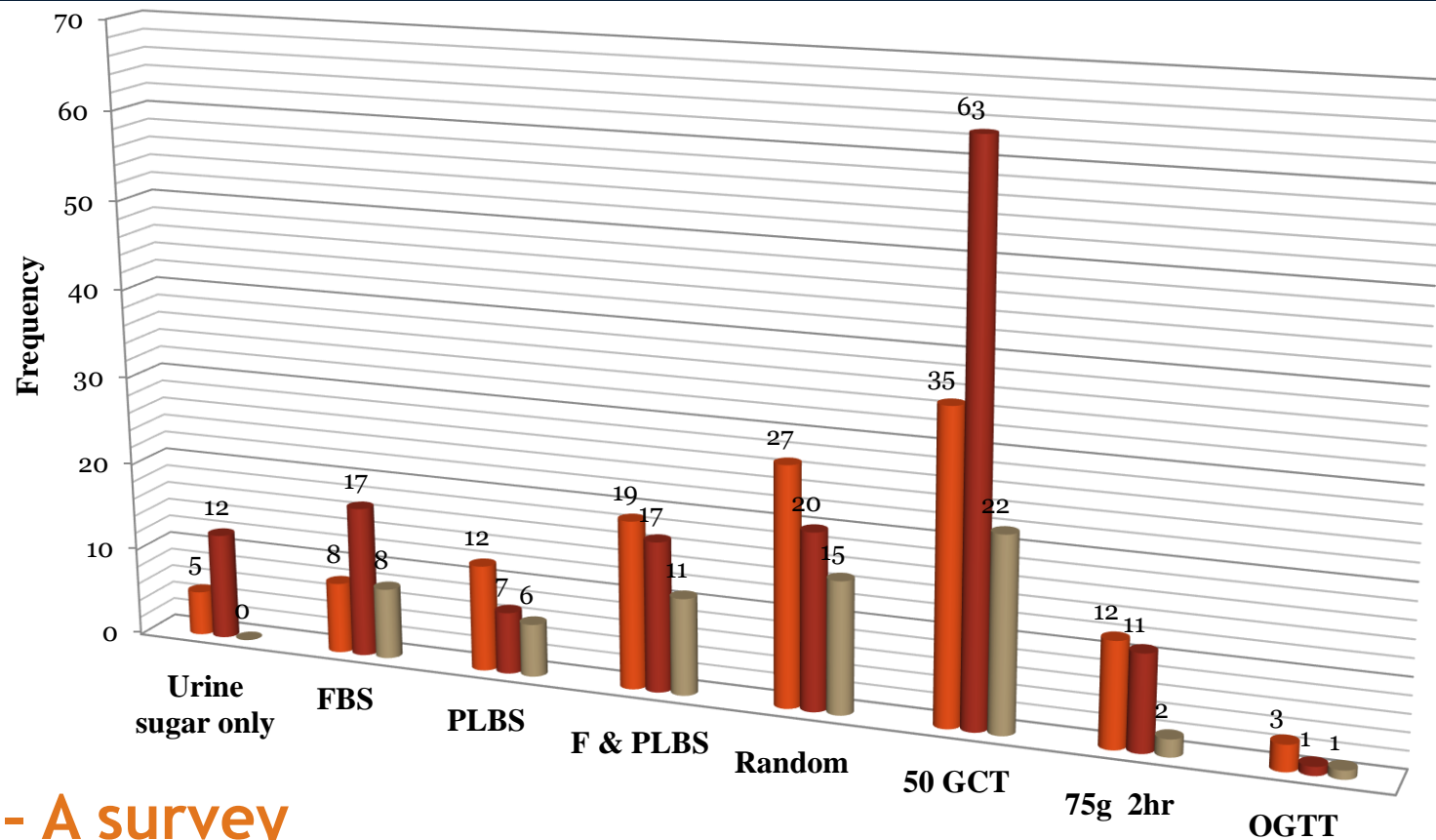
# Different Health Provider settings in INDIA



How to test so many women for GDM ?



# Which Screening tests ? ( numbers in each group )



GDM - A survey  
amongst  
Obstetricians in  
India ( 2009 )

Group  
■ Private ■ Public ■ Corporate

## 2 Step testing - Challenges with the OGTT

- Poor recall once a screening test came positive
- Cumbersome test ( True for IADPSG also )
- Logistically difficult to implement in low resource settings



# DIPSI TEST

Acta Diabetol (2009) 46:51–54  
DOI 10.1007/s00592-008-0060-9

## ORIGINAL ARTICLE

### A single test procedure to diagnose gestational diabetes mellitus

C. Anjalakshi · V. Balaji · Madhuri S. Balaji ·  
S. Ashalata · Sheela Suganthi · T. Arthi ·  
M. Thamizharasi · V. Seshiah

Received: 19 July 2007 / Accepted: 9 September 2008 / Published online: 2 October 2008  
© Springer-Verlag 2008

**Abstract** Universal screening for gestational diabetes mellitus (GDM), detects more cases and improves maternal and offspring prognosis. Of all the screening tests, World Health Organization (WHO) procedure is simple and cost effective; the only disadvantage is that the pregnant woman has to come in the fasting state to undergo oral glucose tolerance test (OGTT). Hence, we undertook a study to elucidate a test that is casual and reliable to diagnose GDM. A total of 800 pregnant women underwent 75-g glucose challenge test (GCT) irrespective of the time of the last meal and their 2-h plasma glucose (PG) was estimated. They also underwent a 2-h 75-g OGTT recommended by WHO after 72 h. There was no statistically significant difference in the glycemic profile between GCT and WHO OGTT in the diagnosis of GDM. In conclusion, GCT

#### Introduction

Gestational diabetes mellitus (GDM) is defined as carbohydrate intolerance of variable severity with onset or first recognition during pregnancy [1]. GDM is not only associated with increasing pregnancy morbidity but also increases the likelihood of subsequent diabetes in the mother. As such GDM has implications beyond the index pregnancy, identifying two generations at risk of future diabetes [2]. Hence, detection and care of women with GDM becomes necessary in the strategy for the primary prevention of diabetes [3]. American Diabetes Association (ADA) recommends selective screening to detect GDM. This policy may not be applicable for population belonging to the ethnic group with high

# DIPSI ONE STEP TEST

- This single test performed irrespective of the last meal timing is rational and patient friendly.
- Compares well with the IADPSG test ( no significant difference in pick up rates )
- Seshiah V, Balaji V, Siddharth S, Shashank Joshi, AK Das, Sahay BK, et al.  
*Diagnosis of gestational diabetes mellitus in the community. J Assoc Phys India,*

FOGSI also supports this as it is validated and can be applied in all settings

# WHO Observations and Recommendations - 2013



▪ For a pregnant women, the request to attend fasting for a blood test may not be realistic because of the long travel distance to the clinic in many parts of the world, and increased tendency to nausea in the fasting state. **Consequently non-fasting testing may be the only practical option.**

## ▪ Considerations in testing for hyperglycaemia in pregnancy Feasibility

- **Laboratory glucose measurement is often not available and testing with a portable blood glucose meter is the only option.**

*Strategies for Implementing the WHO Diagnostic Criteria and Classification of Hyperglycaemia First Detected in Pregnancy* -Ref - WHO/NMH/MND/13.2

# Indian Guidelines – Journal of the Indian Medical Association · November 2009

## **GESTATIONAL DIABETES MELLITUS – Indian Guidelines**

*Seshiah V, Sahay BK, Das AK, Siddharth Shah, Samar Banerjee, Rao PV, Ammini A, Balaji V, Sunil Gupta, Hema Divakar, Sujata Misra, Uday Thanawala*

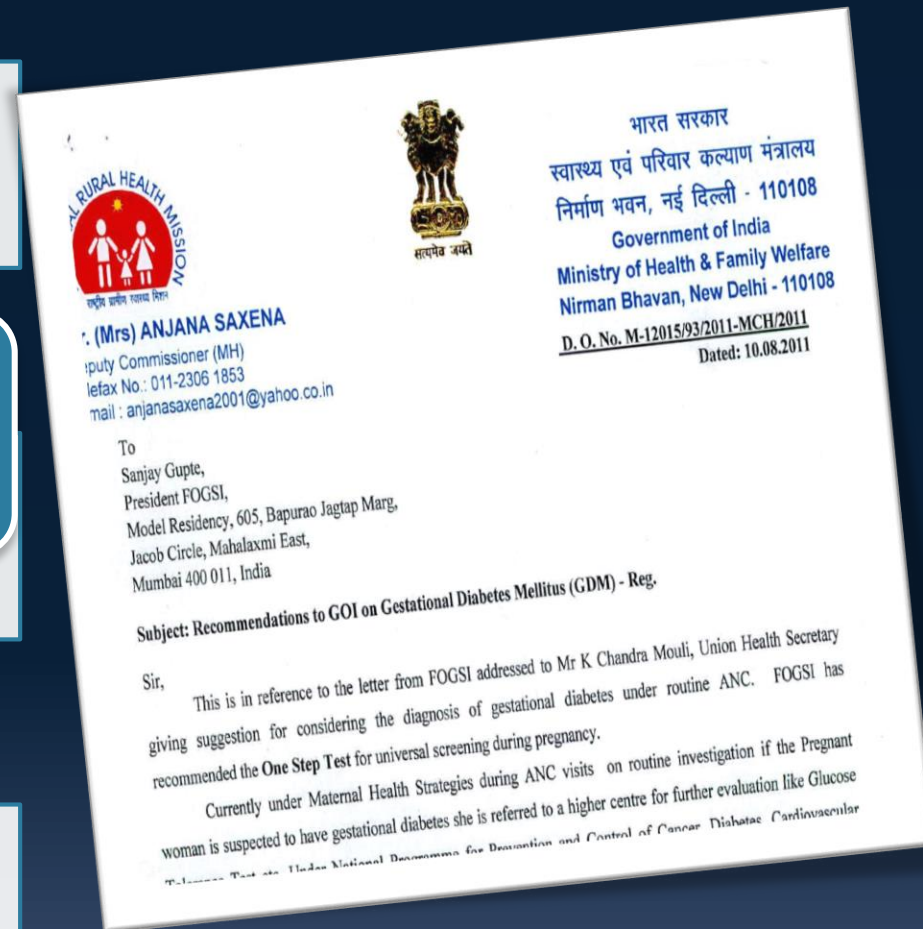
*Associated medical fraternity: **Diabetes In Pregnancy Study Group India [DIPSI]** - V Seshiah (Chennai), A K Das (Puduchery), V Balaji: (Chennai), Madhuri S Balaji (Chennai), Sunil Gupta (Nagpur), A Panneerselvam (Chennai), Anuj Maheshwari (Lucknow), Shyam Mukundan (Alwaye), Mary John (Ludhiana), Lilly Rodrigues (Hyderabad), **Association of Physicians of India [API]** - Siddharth N Shah (Mumbai), B K Sahay (Hyderabad), Muralidhar Rao (Gulbarga), N Rajendran (Chennai), **Indian Medical Association [IMA]** - Samar Bannerjee (Kolkata), A Bhavadharini (Erode), **Federation of Obstetric & Gynecological Societies of India [FOGSI]** –C N Purandare (Mumbai), Sanjay Gupte (Pune), Sujata Misra (Cuttack), Hema Divakar (Bengaluru), Uday Thanawala (Navi Mumbai), Ambarish Bhandiwad (Mysore), Cynthia Alexander (Chennai), Anjalakshi C (Chennai), **Research Society for the Study of Diabetes in India [RSSDI]** - K M Prasanna Kumar (Bengaluru), P V Rao (Hyderabad), Itendra Singh (Jammu), Manur Patel*

# •Importance of Standardization

Single, standard approach to upgrade Ob Gyn workforce will be more efficient, especially in semi urban and rural settings

Uniformity of professional and community expectation is really important

Time to follow INDIAN GUIDELINES



# Methodology:

## Test for universal screening as per GOI guidelines

Single step testing using 75 g oral glucose & measuring plasma glucose 2 hour after ingestion.

75 g glucose is to be given orally with approximately 300 ml water whether the PW comes in fasting or non-fasting state, irrespective of the last meal. The intake of the solution has to be completed within 5 min.

A plasma standardized Glucometer should be used to evaluate blood glucose after 2 hours of oral glucose load.

If vomiting occurs within 30 min of oral glucose intake, the test has to be repeated the next day; if vomiting occurs after 30 mins, the test continues.

The Threshold plasma glucose level of  $\geq 140$  mg/dL is taken as cut off for diagnosis of GDM.

# Universal Testing 75 gm OGTT

1<sup>st</sup> screening in first trimester

2<sup>nd</sup> screening between 24-28 weeks

Universal GDM screening of pregnant women

**Easy procedure** – no medical expertise required

**Client friendly** – irrespective of last-meal

**No interference with routine** - Done during routine antenatal check-ups

**One step procedure** for screening and diagnosis

Negative

(90 % of Pregnant women)

Positive

(10% of Pregnant women)

# **The International Federation of Gynecology and Obstetrics (FIGO) Initiative on Gestational Diabetes Mellitus: A Pragmatic Guide for Diagnosis, Management, and Care**

Moshe Hod, Anil Kapur, David A. Sacks, Eran Hadar, Mukesh Agarwal, Gian Carlo Di Renzo, Luis Cabero Roura, Harold David McIntyre, Jessica L. Morris, Hema Divakar

*FIGO recognizes that management of diabetes in pregnancy should be made in accord with available national resources and infrastructure, even without high quality evidence, as it is preferred to the alternative of no or poor care*

*FIGO recommends and supports the call for greater attention and focus on the links between maternal health and non-communicable diseases as a developmental agenda.*



**On behalf of the HIP Working Group:  
Professor Moshe Hod (Chair),  
Dr Hema Divakar (Co-Chair)**

# FIGO GUIDELINES

## Alternative strategies as currently used in specified countries

China: Medium- to low- resource settings serving populations at high risk	All women at booking/first trimester	Measure FPG to detect diabetes in pregnancy	>7.0mmol/L or >126mg/dL. FPG values between 5.6 and 6.9mmol/L, (100–125mg/dL) consider as GDM [18]	2 ⊕○○○
	24–28 weeks	If negative: perform 75-g 2-hour OGTT Or To reduce number of OGTTs measure FPG. Only in women with values between 4.5mmol/L and 5.0mmol/L (81–90mg/dL) perform 75-g 2-hour OGTT	Value >5.1 mmol/L or >92 mg/dL diagnostic of GDM	1 ⊕⊕⊕○
Indian subcontinent: Medium- to low- resource settings serving rural/semi- urban/urban ethnic populations at high risk	All women at booking/first trimester	Measure fasting or nonfasting 2-hour value after 75-g OGTT	Reading between 7.8 and 11.0mmol/L or 140 and 199mg/dL indicates GDM [19,20] <sup>c</sup>	2 ⊕○○○
	24–28 weeks	If negative: repeat test		

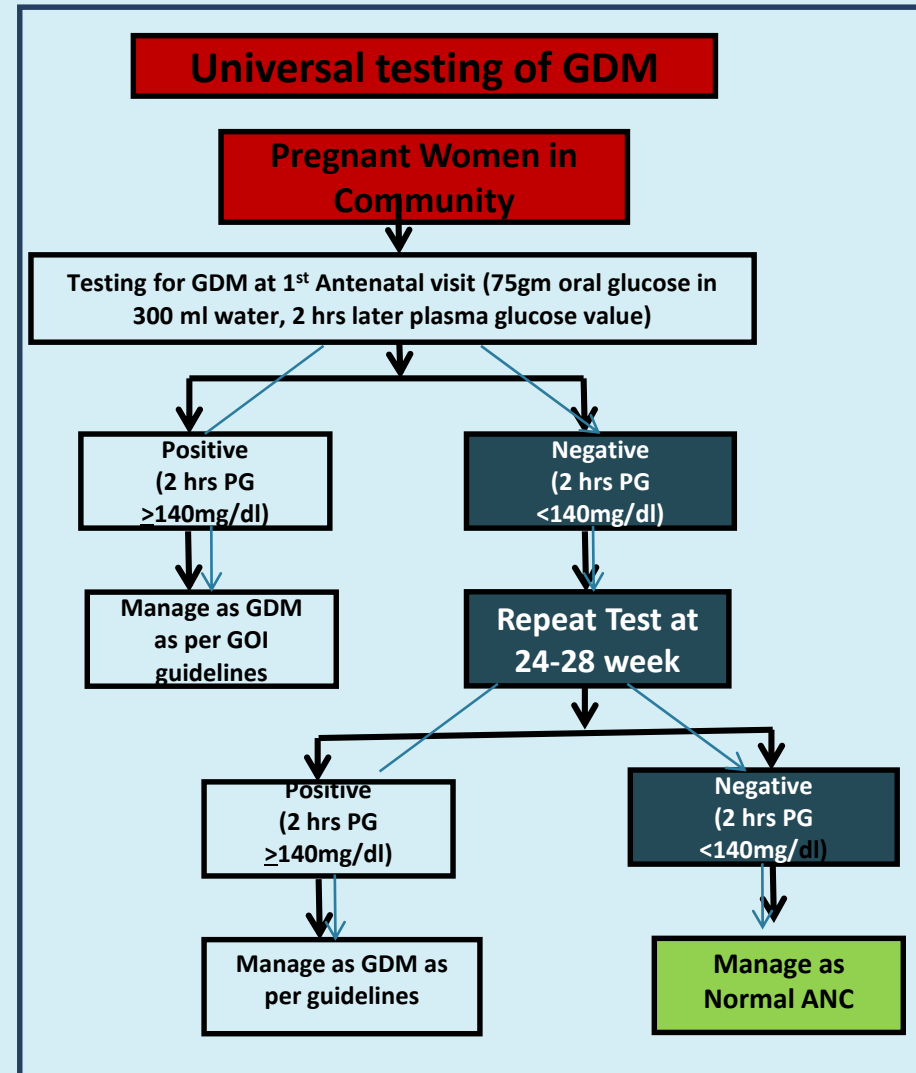
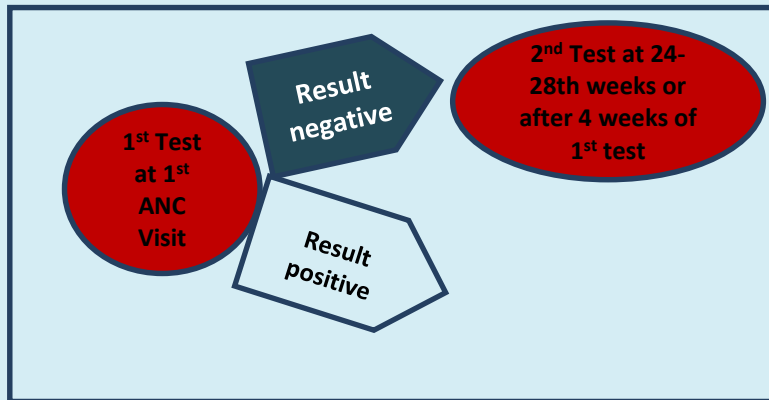
Diabetes in Pregnancy Study Group in India (DIPSI) Guideline [8].

Anjalakshi C, Balaji V, Balaji MS, Ashalata S, Suganthi S, Arthi T, et al. A sin- gle test procedure to  
diagnose gestational diabetes mellitus. Acta Diabetol 2009;46(1):51–4.

# Two hour plasma glucose

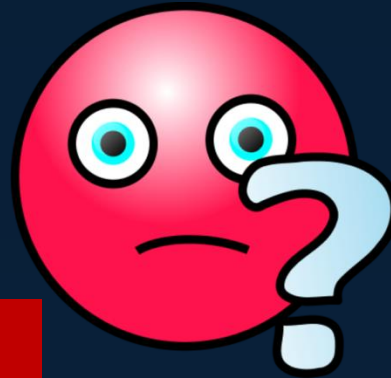
Plasma glucose level	Status
>200 mg/dl	Diabetes
>140-199mg/dl	GDM
120-139 mg/dl	GGI
<120 mg/dl	Normal

# Algorithm



WHEN EVERY ONE STARTS DOING THE TESTS

3 MILLION GDMs IDENTIFIED  
EVERY YEAR IN INDIA



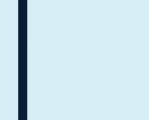
◎WHO WILL TAKE CARE ?

**ONLY 1000  
DIABETOLOGISTS**

# MANAGEMENT OF GDM

- ◎ IDEALLY
- ◎ A team approach is ideal for managing GDM.
- ◎ an obstetrician,
- ◎ diabetes physician,
- ◎ a diabetes educator, dietitian,
- ◎ Ultrasonologist
- ◎ midwife and
- ◎ pediatrician.





- **Dietecian** –

- not available
- varied diet across the country

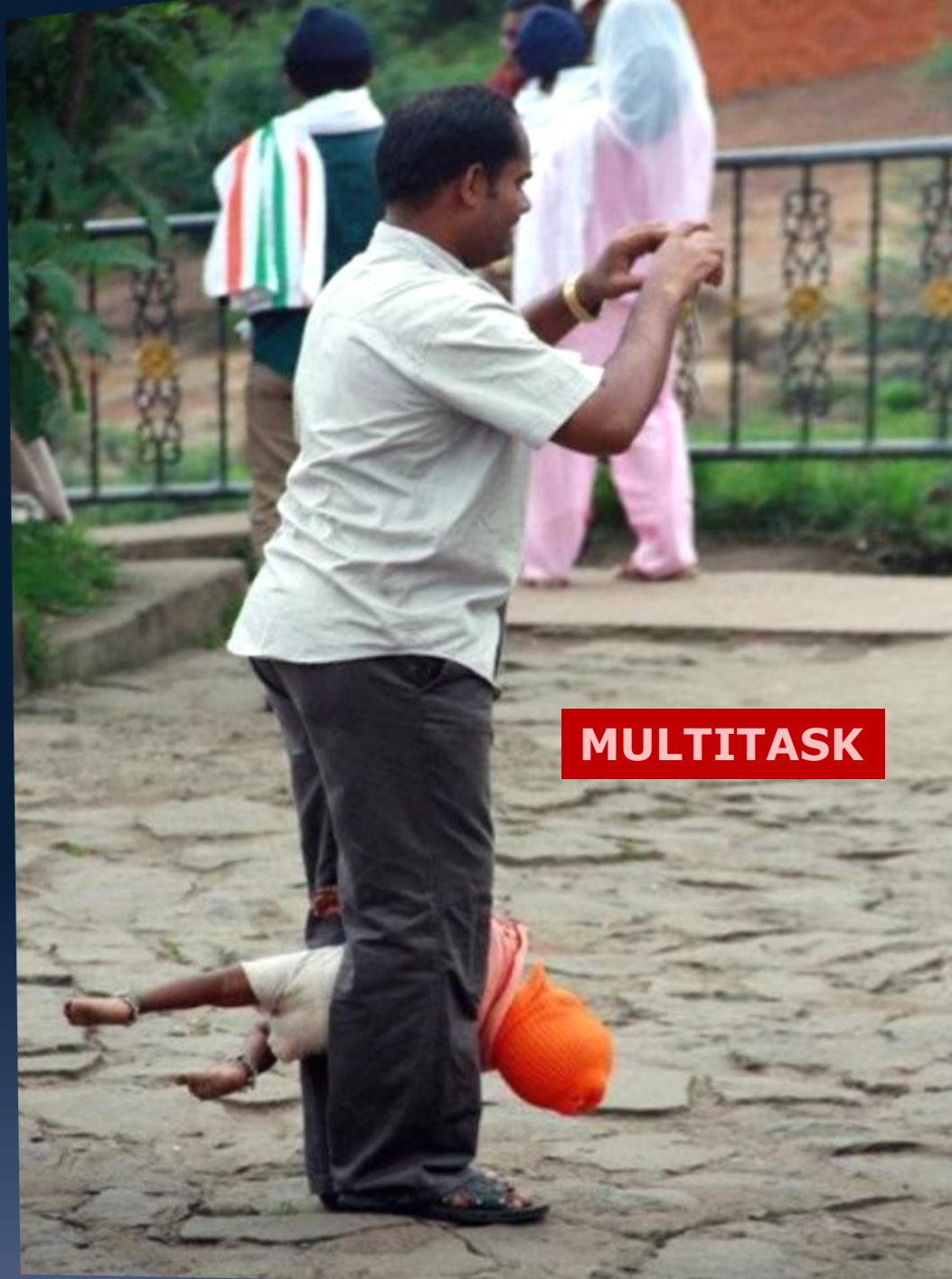
- **Diabetologist** –

- not enough numbers in all cities
- And non existent in rural

**BARRIERS to PROVISION –**  
**Once diagnosed – what next?**

Innovative  
ways to build  
capacities to  
offer  
alternatives

TRIUMPH  
TO TRAIN OBGYNS  
TO HANDLE THESE CASES



**MULTITASK**

Speciality Course on  
“Gestational  
Diabetes Mellitus”

An initiative of:



FOGSI



DIPS



Recognised by:



WORLD DIABETES FOUNDATION



# certification course

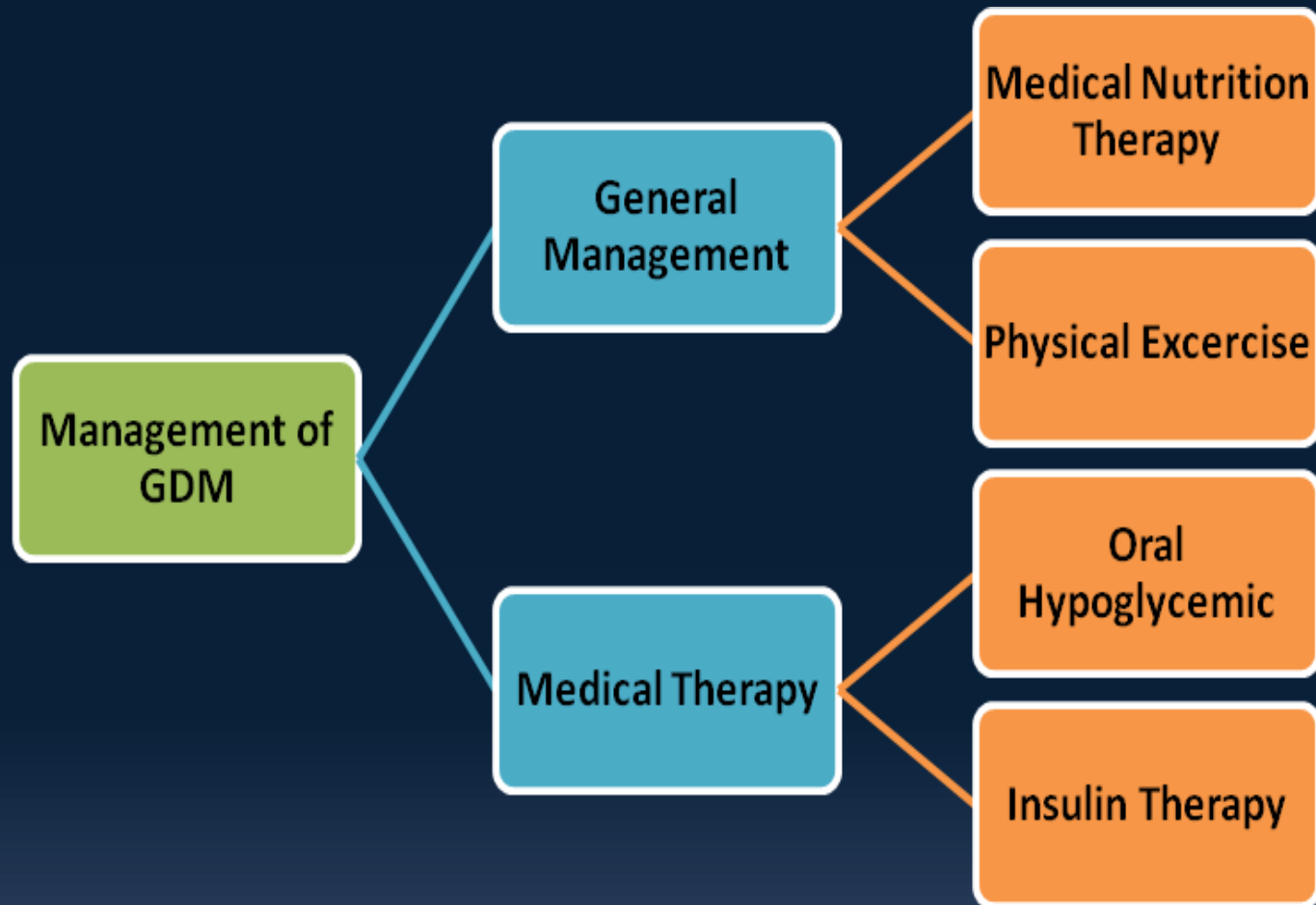
- Developing a set of **power point** training slides by FIGO
- and used by **master trainers** in their presentations at training courses



# involve other stakeholders

◎ **TARGET GROUPS** for  
training and capacity  
building  
Specialists  
Postgraduates  
Medical officers  
Midwives/Nurses  
Other Health care  
providers  
Community health workers





# Counseling

- ❖ Inform her about GDM and how it affects her and her baby (during and after pregnancy)
- ❖ Ensure she understands the need to take care of herself and her baby during this pregnancy and after delivery during the postpartum period and later
- ❖ Inform her why this pregnancy is different from others and why she needs extra care

Counsel pregnant women with GDM that she should continue *diet control (MNT) and physical exercise* during pregnancy and throughout the postpartum period.

# How good should be the sugar control?

- The fetus in-utero should not come to know that the mother has diabetes ! – *Prof Sunil Gupta ; Nagpur*
- If maternal sugar well controlled then perinatal outcome like any normal pregnancy
- SMBS
- ensure good control of Blood Sugar – Diet , Exercise , Drugs.
- Target Values – Fasting 90mg/dl ; Post meal 2 hrs – 120mg/dl

# Recommendations

- FIGO recognizes that nutrition counseling and physical activity are the primary tools in the management of GDM.
- FIGO recommends that women with GDM receive practical nutrition education and counseling that empowers them to choose the right quantity and quality of food.
- Women with GDM must be repeatedly advised to continue the same healthy eating habits after delivery to reduce the risk of future T2DM.

## Box 9

### Recommendations for nutrition therapy

Recommendations	Resource setting	Strength of recommendation and quality of evidence
<p>We recommend that the following principles should be adhered for all pregnant women with diabetes:</p> <ul style="list-style-type: none"> <li>• Design an appropriate diet with respect to prepregnancy BMI, desired body weight, physical activity, habits, and personal and cultural preferences.</li> <li>• Provide routine follow-up and diet adjustments throughout pregnancy to achieve and maintain treatment goals.</li> <li>• Offer training, education, support, and follow-up by a qualified dietician experienced in care of women with diabetes. Issues for discussion include: weight control, food records, carbohydrate counting, prevention of hypoglycemia, healthy foods, and physical activity.</li> </ul>	All	1 ⊕⊕○○
<p>We suggest that caloric intake be calculated based on prepregnancy BMI and desirable weight gain as follows:</p> <ul style="list-style-type: none"> <li>• 35–40 kcal/kg desirable body weight for underweight women</li> <li>• 30–35 kcal/kg desirable body weight for normal weight women</li> <li>• 25–30 kcal/kg desirable body weight for overweight women</li> </ul>	All	2 ⊕⊕○○
<p>We recommend limiting carbohydrate intake to 35%–45% of total calories, with a minimum of 175 g carbohydrate per day, distributed in three small-to-moderate sized meals and 2–4 snacks.</p>	All	1 ⊕⊕⊕○
<p>For obese women, caloric intake may be reduced by 30%, but not below 1600–1800 kcal/d</p>	All	2 ⊕⊕○○
<p>For women with diabetic nephropathy, protein may be lowered to 0.6–0.8 g/kg ideal body weight</p>	All	2 ⊕○○○

Nutrition counselling and physical activity are KEY to reduce risk of future obesity, type 2 diabetes, and cardiovascular diseases

# Composition of lunch and dinner thali

Half portion of thali should contain **vegetables**  
(cooked as well as in form of salad)

lettuce, broccoli,  
spinach, carrots,  
green beans,  
tomatoes, celery,  
cabbage, mushrooms

• guava, apple,  
berries or any  
citrus fruits  
during the day

One serving of  
fruit



at least 1 ser-free yoghurt,  
curd or milk.

One serving of dairy  
product

chapati,  
brown  
rice, bread,  
cereals

One fourth of thali should contain **cereals**

Protein  
dal, soy  
nuggets,  
tofu, eggs,  
paneer  
chicken,  
fish

One fourth of thali should contain **protein rich foods**





Brisk Walk



Household work



Arm Exercise

#### Box 10

Recommendations for physical activity in women with gestational diabetes mellitus.

Recommendations	Resource setting	Strength of recommendation and quality of evidence
<p>We suggest that appropriate, personally adapted, physical activity be recommended for all women with diabetes:</p> <ul style="list-style-type: none"> <li>Planned physical activity of 30 min/day</li> <li>Brisk walking or arm exercises while seated in a chair for 10 min after each meal.</li> <li>Women physically active prior to pregnancy should be encouraged to continue their previous exercise routine.</li> </ul>	All	2 ⊕⊕○○

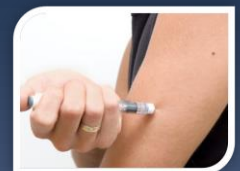


# Medical Therapy –Metformin

- If adequate control not achieved in reasonable time ( 1 to 2 weeks ) -
- Offer metformin
- ( NICE GUIDELINES 2015)

# Add Insulin if-

- Blood glucose targets are not met with Diet + Exercise + Metformin
- -if there are complications such as macrosomia or hydramnios( Diet+ Exercise + +/- Merformin)
- NICE 2015



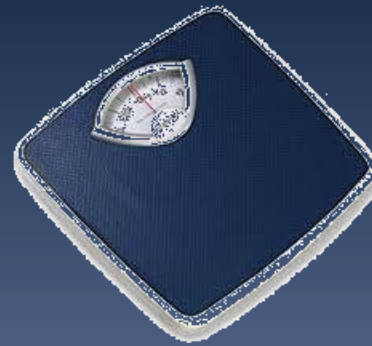
# Recommendations

**Pharmacological management:** If lifestyle modification alone fails to achieve glucose control, metformin, glyburide, or insulin should be considered as safe and effective treatment options for GDM.

## Box 5

Recommendations for glucose monitoring in women with gestational diabetes mellitus.

Recommendations	Resource setting	Strength of recommendation and quality of evidence
Self-monitoring of blood glucose is recommended for all pregnant women with diabetes, 3–4 times a day: <ul style="list-style-type: none"><li>• Fasting: once daily, following at least 8 hours of overnight fasting</li><li>• Postprandial: 2-3 times daily, 1 or 2 hours after the onset of meals, rotating meals on different days of the week</li></ul>	All	2 ⊕⊕○○
Self-monitoring of blood glucose is recommended for all pregnant women with diabetes at least once daily, with documented relation to timing of meal	Low	2 ⊕○○○



Glycemic targets  
Weight gain

## Target weight gain

- ❖ Using the BMI chart and job-aid, based on the woman's current nutrition status, explains the weight required to be gained during pregnancy

	Weight gain
Normal weight	11.5-16 kg
Under weight	12.5 to 18 kg
Over weight	7 to 11.5 kg
Obese	5-9 kg



Antenatal visits

Scans

Tests for fetal well being

Decision for time and mode of delivery

Postnatal care and follow up



Obstetric Management

# Evaluation in first trimester

- Hb A1c - HbA1c & congenital anomalies

<u>Hba1c level</u>	<u>Risk</u>
till 6.5%	not increased
<8%	5%
>10%	25 %

- Scan for viability at 7 weeks – dating
- Anomaly Scan at 11-13 weeks- nuchal Thickness and cardiac evaluation
- Increase risk of congenital abnormalities like sacral agenesis, congenital heart disease,& neural tube defects
- Uterine artery doppler – Screen for future PIH ( aspirin)
- Double marker test ( if Positive NIPT/ CVS)

# First trimester maternal serum free b-human chorionic gonadotropin and pregnancy-associated plasma protein A in pregnancies complicated by diabetes mellitus

MD Savvidou,<sup>a,b</sup> A Syngelaki,<sup>b</sup> M Muhaisen,<sup>b</sup> E Emelyanenko,<sup>b</sup> KH Nicolaides<sup>b,c</sup> Academic Department of Obstetrics and Gynaecology, Imperial College School of Medicine, London, UK Accepted 14 November 2011

- Maternal median PAPP-A in type-2 diabetes, compared with the non-diabetic group, was reduced (0.75 MoM, IQR 0.50–1.09 MoM versus 1.00 MoM, IQR 0.68–1.42 MoM;  $P < 0.001$ ), which resulted in doubling in the false-positive rate in the combined screening in this population.

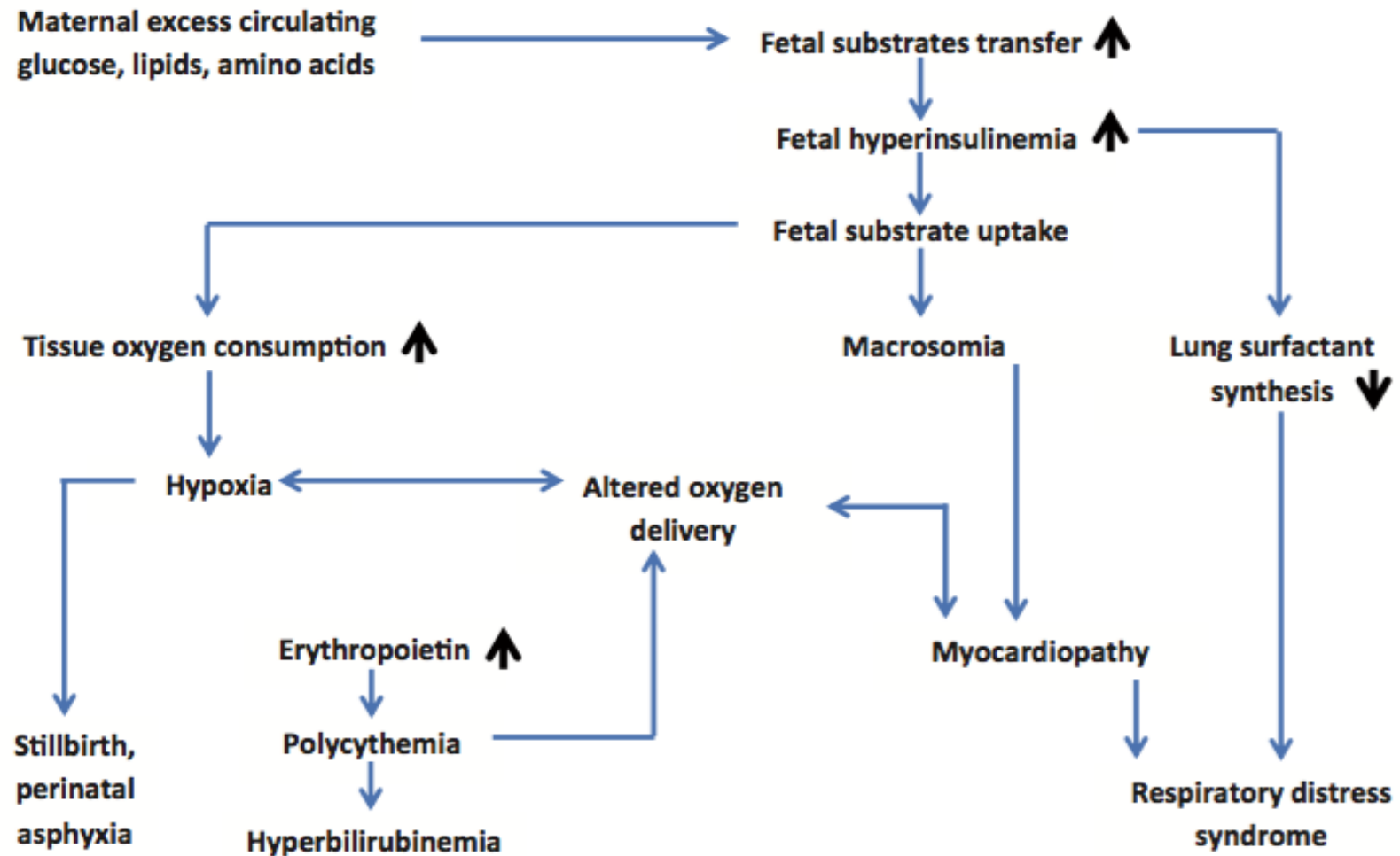
# Second trimester - Fetal Structural assessment & Growth by USG

- Anomaly scan at 18- 20 weeks
- *Fetal ECHO is mandatory*
- 4 weekly scans from 28 weeks - AC / liquor - use growth charts to pick up Growth restriction or Macrosomia

# Ante-partum testing

49

- Type & frequency of antenatal testing should be determined by the severity of maternal hyperglycemia or presence of other adverse clinical factors
- NSTs should be “considered” after 32 weeks’ gestation in women on insulin and “at or near” term in those who are diet controlled
- BPP & Doppler to assess umbilical blood flow “may be considered” if there is excessive or poor growth
- AFI may be misleading



# Doppler and LGA / AFI

- In SGA - Doppler is a good surveillance tool to judge and predict the turning point at which the decreased perfusion—adapted fetus decompensates and delivery is necessary.
- In contrast, for LGA fetuses, with which the placenta is usually large as well, there is an increased blood flow present, and the wave curve is normal, such that the usual perfusion indexes fail to predict placental insufficiency.

↵Rochelsen B, Coury A, Schulman H, Dery C, Klotz M, Shmoys S: Doppler umbilical artery velocimetry in fetuses with polyhydramnions. *Am J Perinatol* 7 : 340–342,1990

# Fetal Well Being

Recommendations for fetal well-being surveillance in women with gestational diabetes mellitus.

Recommendations	Resource setting	Strength of recommendation and quality of evidence
Use cardiotocography and/or biophysical profile or kick-count as indicated according to local protocol	All	1 ⊕○○○



# Maternal monitoring

- Frequent ANC visits –
- Watch for Hypertension / other maternal problems – retinopathy / renal function
- Watch for Pregnancy complications – Hydroamnios , Growth abnormalities

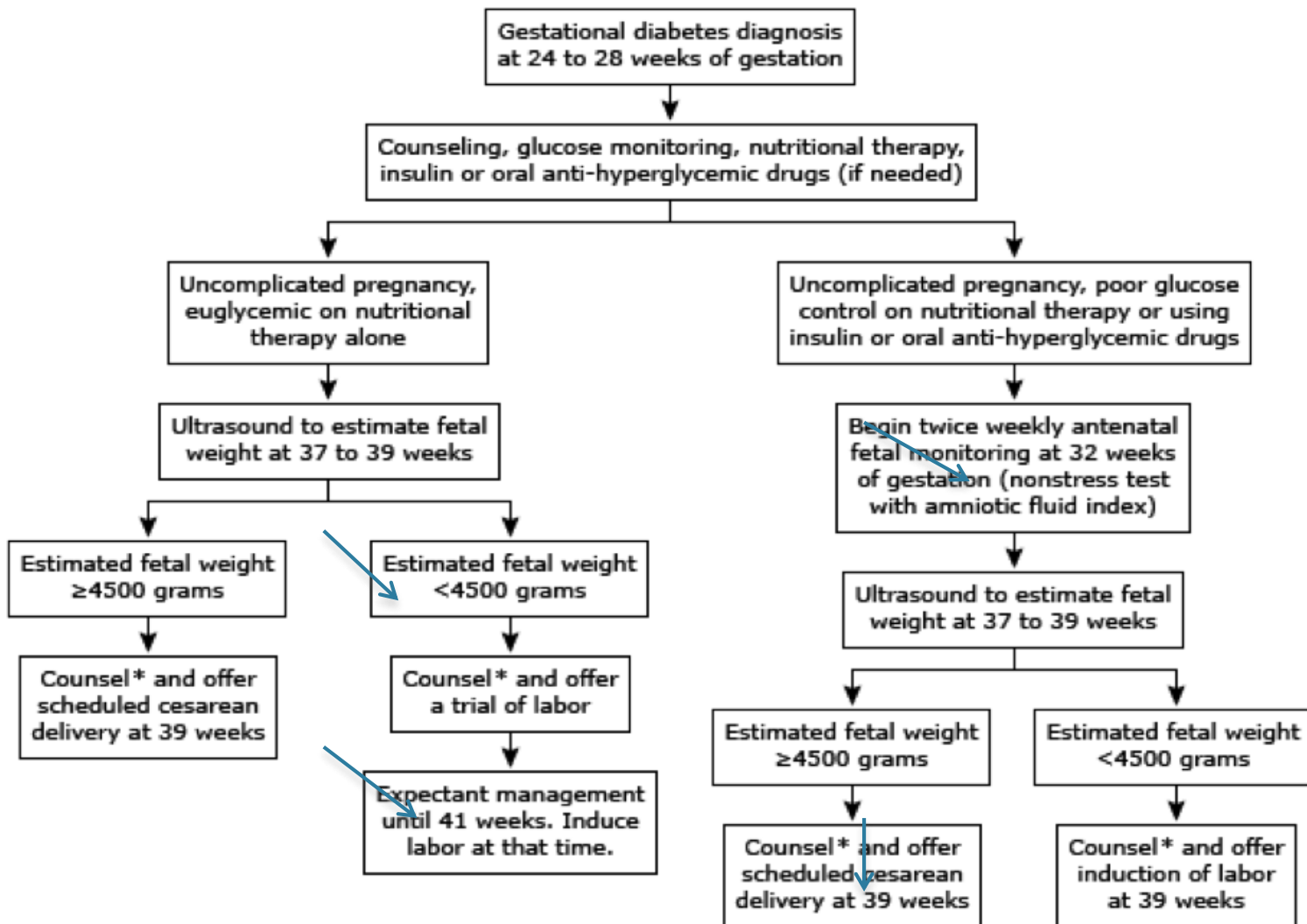
## **Prematurity - MANAGEMENT OF STEROID PULSES**

- Admit ?
- I.M Betamethasone is administered in 2 doses of 12 mg, 12 hours apart OR IM Dexamethasone is administered in 4 doses of 6 mg 6 hours apart
- For patients on subcutaneous insulin increase all insulin doses by 50% 6 to 8 hours after the first dose of steroids
- Maintain this increase until 12 hours after the second dose of Betamethasone or the forth dose of Dexamethasone then revert back to usual insulin doses

# TIMING OF DELIVERY

- Delivery before full term is not indicated unless there is evidence of
  - macrosomia,
  - ployhydramnios,
  - poor metabolic control or
  - other obstetric indications (eg pre-eclampsia or intrauterine growth retardation)
- NICE guidelines say that delivery should be offered at 38 weeks .

# Up to Date 2018



# What investigations help in preventing still births in a diabetic?

- NONE ! – Cause of still birth uncertain
- Relative fetal hypoxia, which increases the risk of intrauterine fetal death.
- Other possible causes -
  - Placental vasculopathy
  - Villous edema
  - Maternal ketacidosis-20-50%
  - Electrolyte disturbances
  - Fetal hypertrophic cardiomyopathy

(Girz BA et al. J Perinatol 1992;12:229-33)

# MODE OF DELIVERY

GDM is not an indication for LSCS  
Individualize



# POST PARTUM FOLLOW UP – The Unfinished Agenda

## POSTPARTUM AIMS



Early  
**DETECTION**  
of infections



**SUPPORT**  
of  
breastfeeding



**ADVICE** on  
pregnancy  
spacing



**RETEST** all women  
with GDM at 6-12  
weeks postpartum



Future  
blood glucose  
**TESTS**

# Individual Barriers to Post partum Screening

Lack of time - burden of child care, baby's health issues, adjustment to the new baby

**Not informed about post partum test**

Emotional stress, feeling overwhelmed

Cost, dependence, transportation

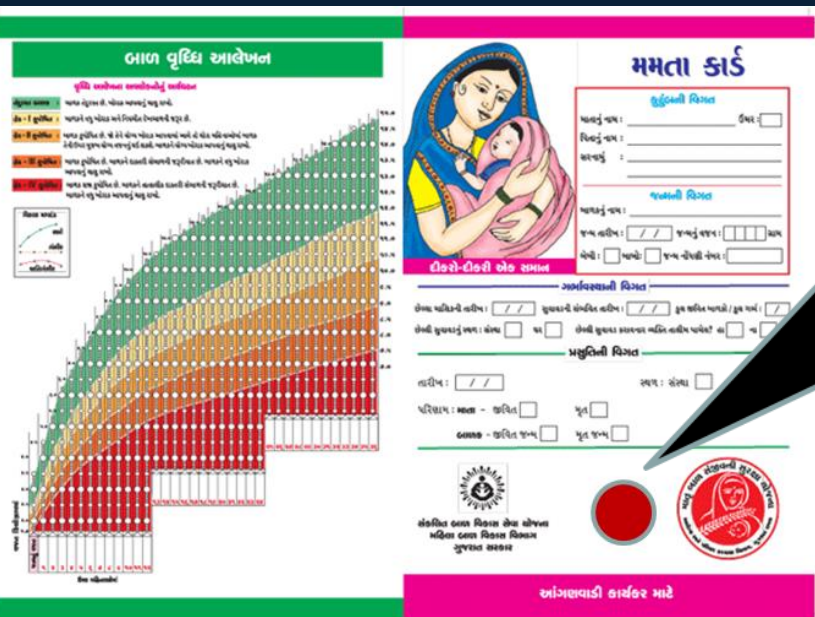
Lost requisition, or move to parental home for delivery

**Feeling healthy and not in need for care, or fear of receiving bad news**

Poor delivery experience, dissatisfaction with care and logistics of accessing care and lack of trust in HCP



- FIGO encourages obstetricians to establish connections with family physicians, internists, pediatricians, and other healthcare providers to support postpartum follow-up of GDM mothers linked to the regular check-up and vaccination program of the child to ensure continued engagement of the high-risk mother-child pair.



A sticker like this could alert the nurse/ pediatrician that the child is Off spring of GDM Mother and this could initiate a brief discussion on lifestyle, weight and reminder for follow up

# Thank You



— FOGSI FOCUS —

## THE Healthy Generation X

FOGSI Perinatology Committee

Editors: **Uday Thanawala** (Vice President FOGSI 2015)

**Reena Wani** (Chairperson, Perinatology Committee FOGSI 2015-2017)



- FIGO supports the concept that the postpartum period in women with GDM provides an important platform to initiate early preventive health for both the mother and the child who are both at a heightened risk for future obesity, metabolic syndrome, diabetes, hypertension, and cardiovascular disorders.

- FIGO encourages obstetricians to establish connections with family physicians, internists, pediatricians, and other healthcare providers to support postpartum follow-up of GDM mothers linked to the regular check-up and vaccination program of the child to ensure continued engagement of the high-risk mother-child pair.

## PREGNANCY OFFERS A WINDOW OF OPPORTUNITY TO:

- Establish services
- Improve health
- Prevent intergenerational transmission of non-communicable diseases

## POSTPARTUM AIMS



Early  
**DETECTION**  
of infections



**SUPPORT**  
of  
breastfeeding



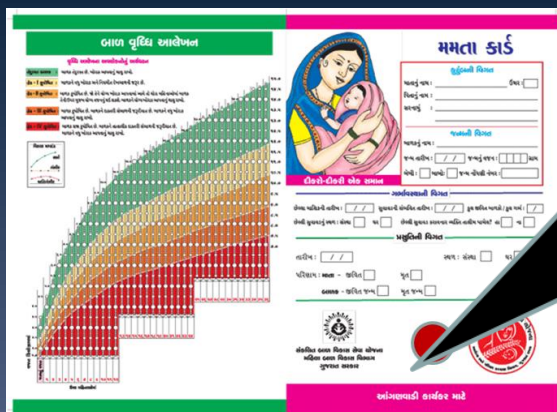
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**From HIP (Hyperglycemia in Pregnancy)  
to  
prevention of DAP(Diabetes after Pregnancy)**

**Life course approach to  
management , prediction and prevention of NCD  
– Mother and Offspring**

Thank You



# Complications on the fetus –

**First trimester-**  
Malformations;  
fetal wastage

**Second Trimester-**  
Hypertrophic  
cardiomyopathy;  
polyhydromnios  
Prematurity

**Third Trimester**  
Macrosomia  
IUGR ;  
IUD

**Neonatal Problems**  
Birth Injuries ;  
Metabolic  
disturbances;  
RDS,  
polycythemia  
hyperbilirubinemia

# One step 75gm non fasting - Advantages



- ✓ 3times more pick up than with two step
- ✓ Suitable for Indian setting
- ✓ Saves time
- ✓ Saves cost
- ✓ Avoids repeated visits
- ✓ Reduces repeated invasive sampling

# Indian Guidelines – DIPSI

- Universal Screening
- Screening in each trimester



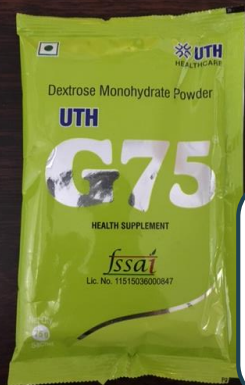
- Test suggested by DIPSI , most pragmatic in Indian Settings



# Point of care testing

**Testing time is more in laboratories,  
which results in number of women  
leaving community health centres before  
diagnosis established.**

**Point of care testing will have a  
transformative effect on health care**



# Protocol for investigation

Testing for GDM is recommended twice during ANC.

The first testing should be done during first antenatal contact as early as possible in pregnancy.

The second testing should be done during 24-28 weeks of pregnancy if the first test is negative.

There should be at least 4 weeks gap between the two tests.

The test is to be conducted for all PW even if she comes late in pregnancy for ANC at the time of first contact.

If she presents beyond 28 weeks of pregnancy, only one test is to be done at the first point of contact.

a) Preferable to start with Premix insulin 30/ 70 of any brand.\*

Starting dose: 4 units before breakfast



Every 4<sup>th</sup> day increase 2 units till 10 units



If FPG remains > 90 mg/dl and 2hr PG > 120mg/dl advised → - 6 units of regular insulin before breakfast & 6 units of premixed insulin before dinner

Review with blood sugar test → Adjust dose further

Total insulin dose per day can be divided as 2/3 in the morning & 1/3 in the evening

\* Initially if post breakfast plasma glucose is high → Start Premix 50/50