International Federation of Gynecology and Obstetrics

WORKING GROUP ON HYPERGLYCEMIA IN PREGNANCY (HIP)

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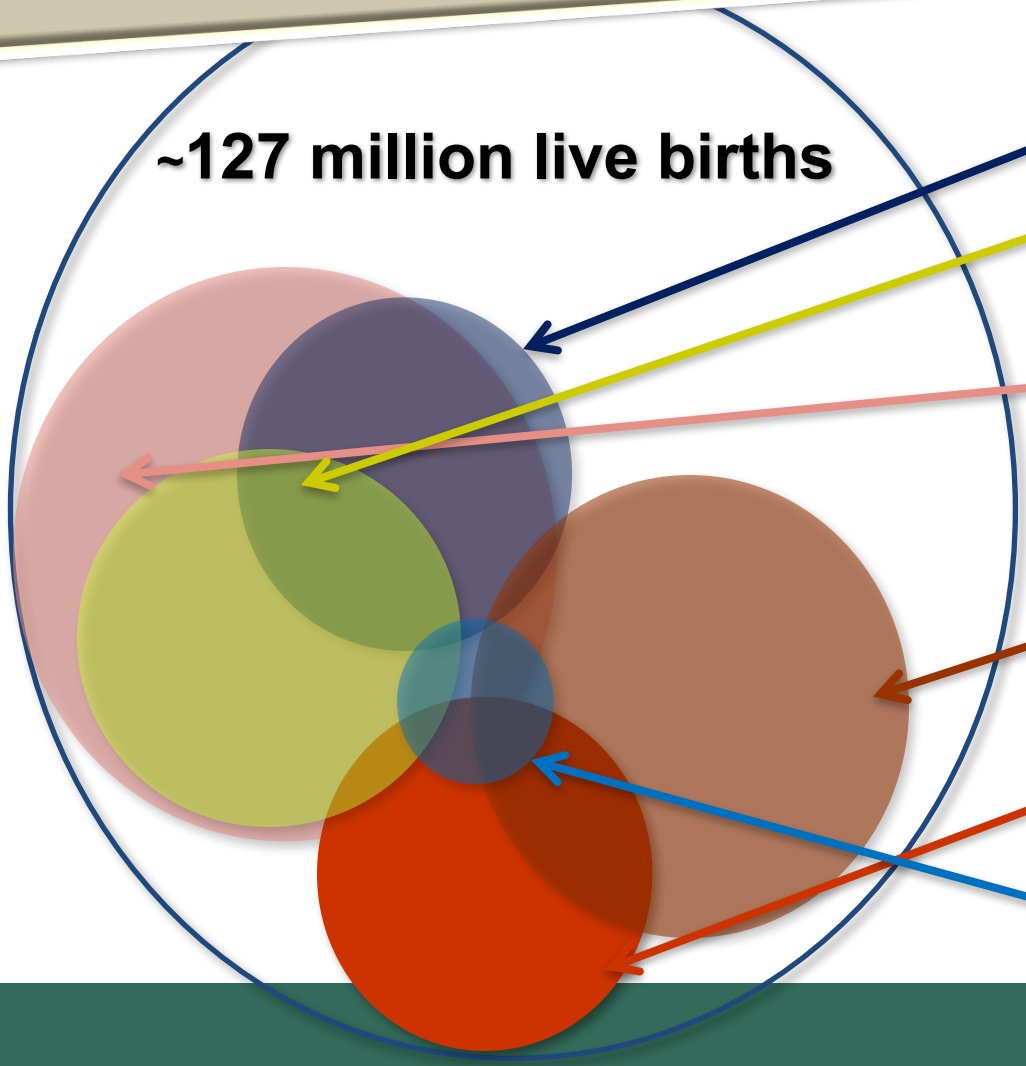
FIGO GUIDELINES ON DIAGNOSIS, MANAGEMENT & CARE OF GIRLS AND WOMEN WITH GESTATIONAL DIABETES

FIGO's NCD Challenge

Contributors for Maternal Morbidity and Foetal Programming

Pregnancy Induced Complications



Maternal Malaria
20 million pregnancies

Maternal Undernutrition
26 million pregnancies

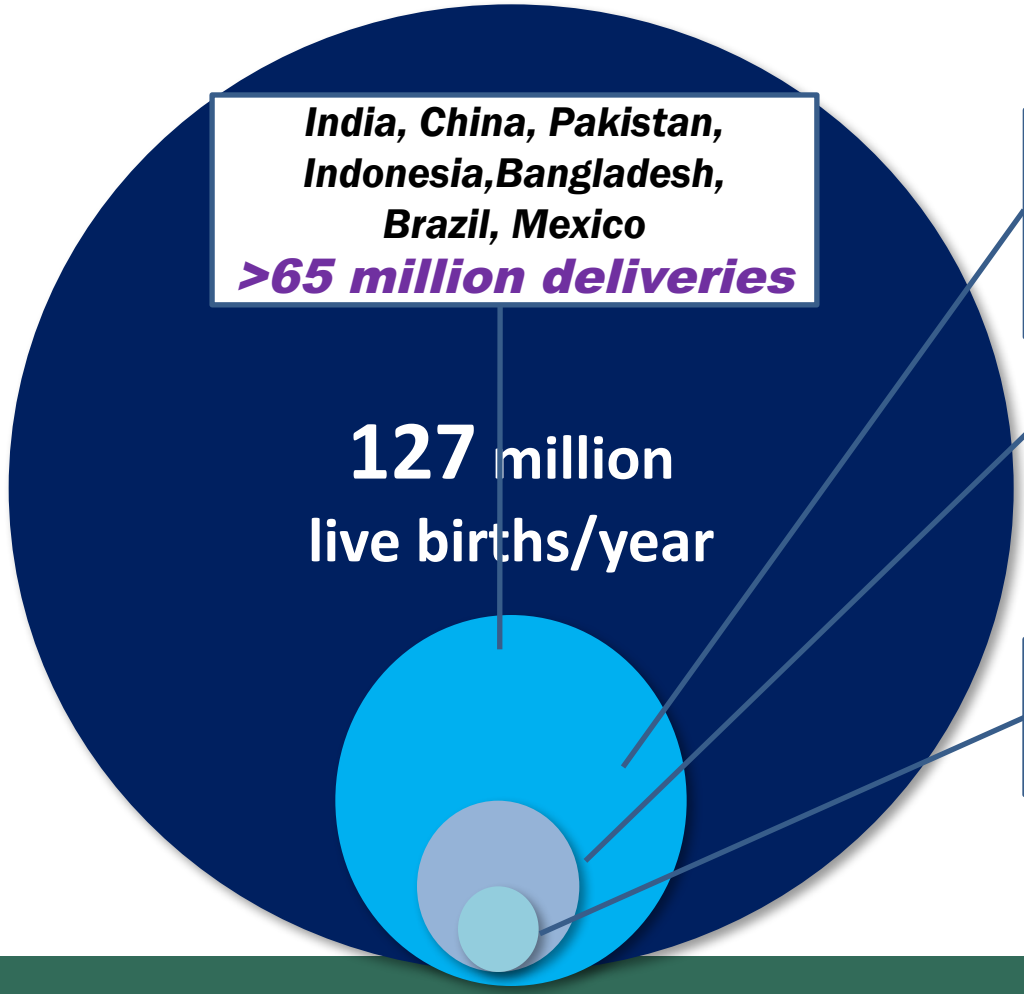
Maternal Anaemia
56 million pregnancies

Maternal Obesity
42 million pregnancies

Maternal Hyperglycaemia
~21 million pregnancies

Maternal hypertensive disorders
~7 million pregnancies

FIGO - The HIP Challenge



~21 million /year complicated by hyperglycaemia

~3 to 4 million detected and treated

Receive Post partum follow up and lifestyle advice ?

HIP is a major global health problem

Hyperglycemia is one of the **most common medical conditions women encounter during pregnancy**

1 *in* 6 live births occur to women with some form of hyperglycemia

84% *of which are due to GDM*

HYPERGLYCEMIA/GDM IS ASSOCIATED WITH:

- Leading causes of **maternal mortality**
- Higher incidence of **maternal morbidity**
- Higher incidence of **perinatal and neonatal morbidity**
- **Later long term consequences** for both mother and child

HIP is a major global health problem

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"...Facing a "Slow-Motion Disaster"
UN Meeting on Non Communicable Diseases

- Margaret Chan, Director-General,
World Health Organization (WHO),Sept. 2011

The NEW ENGLAND JOURNAL of MEDICINE

- *There is an increasing global crisis in NCD*
- *NCD are associated with mortality, morbidity, and long-term disability*
- *Two of three deaths globally are attributable NCDs*

Non Communicable Diseases are Programmed & Imprinted during Pregnancy

Diagnosis and management may help turn the tide of the
Diabetes - NCD pandemic

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Dec 2013

FIGO Expert Group on GDM established

Oct 2015

Launch of guidelines on diagnosis, management and care

International Journal of Gynecology and Obstetrics 129 S1 (2015) S3–S41

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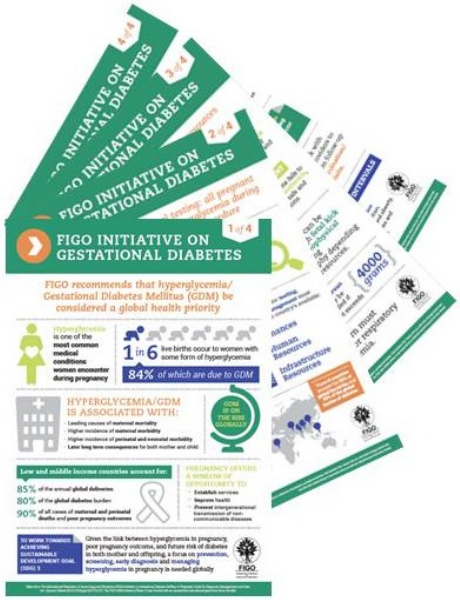
journal homepage: www.elsevier.com/locate/ijgo

www.figo.org

The International Federation of Gynecology and Obstetrics (FIGO) Initiative on gestational diabetes mellitus: A pragmatic guide for diagnosis, management, and care#

Moshe Hod[a], Anil Kapur[b], David A. Sacks[c], Eran Hadar[d,e], Mukesh Agarwal[f], Gian Carlo Di Renzo[g], Luis Cabero Roura[h], Hema Divakar[i], Harold David McIntyre[j], Jessica L. Morris[k,*]



Recommendations graded by quality of evidence

Provides a call for action to policy makers

Provides options according to resource setting

Identifies key points of intervention

FIGO GDM guidelines

Executive summary
The target audience
Assessment of quality of evidence and grading of recommendation
Gestational Diabetes Mellitus(GDM)–Background, Definition, Epidemiology, Pathophysiology
Diagnosing Gestational Diabetes Mellitus
Glucose Measurement: Technical considerations in laboratory and point of care (POC)testing
Management during pregnancy
Post-Partum Management
Pre Conception Care
Research Priorities
Appendix

- Current Approaches to GDM diagnosis in selected high burden developing countries
- Gestational Diabetes Formulas for Cost-Effectiveness - GeDiForCE®
- Research Priorities in Gestational Diabetes

Recommendations graded by quality of evidence

Provides a call for action to policy makers

Provides options according to resource setting

Identifies key points of intervention

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Describes and differentiates GDM

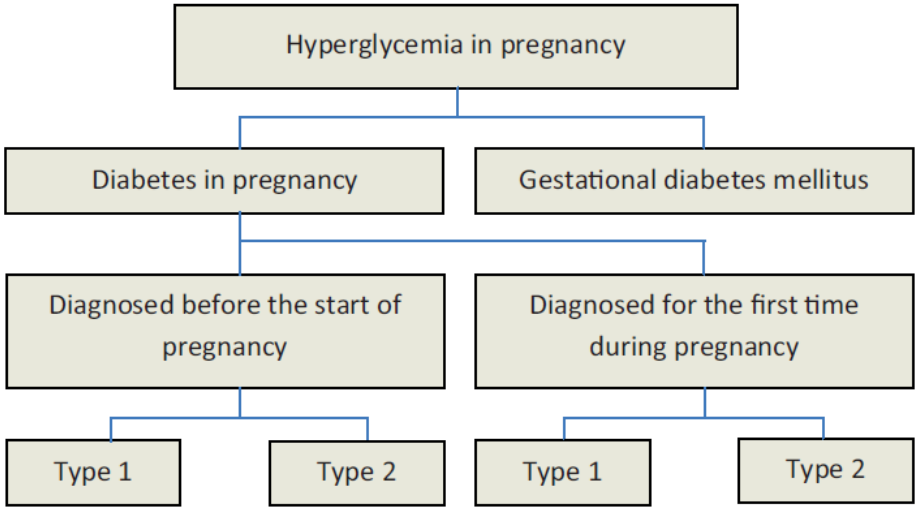

Figure 1 Types of hyperglycemia in pregnancy.

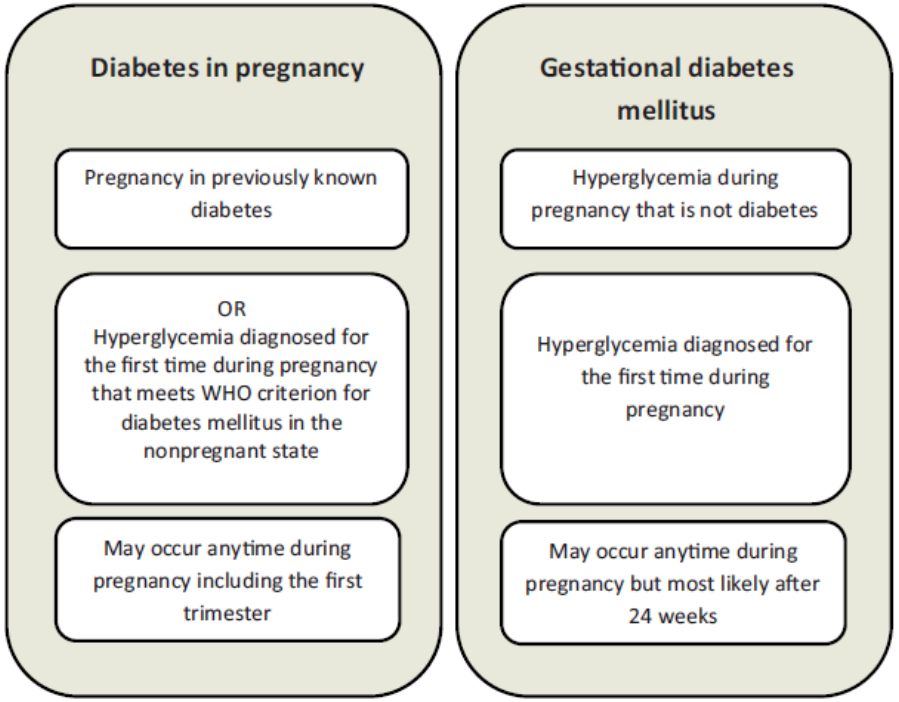

Figure 2 The difference between diabetes in pregnancy and gestational diabetes mellitus.

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FIGO (WHO) Classification

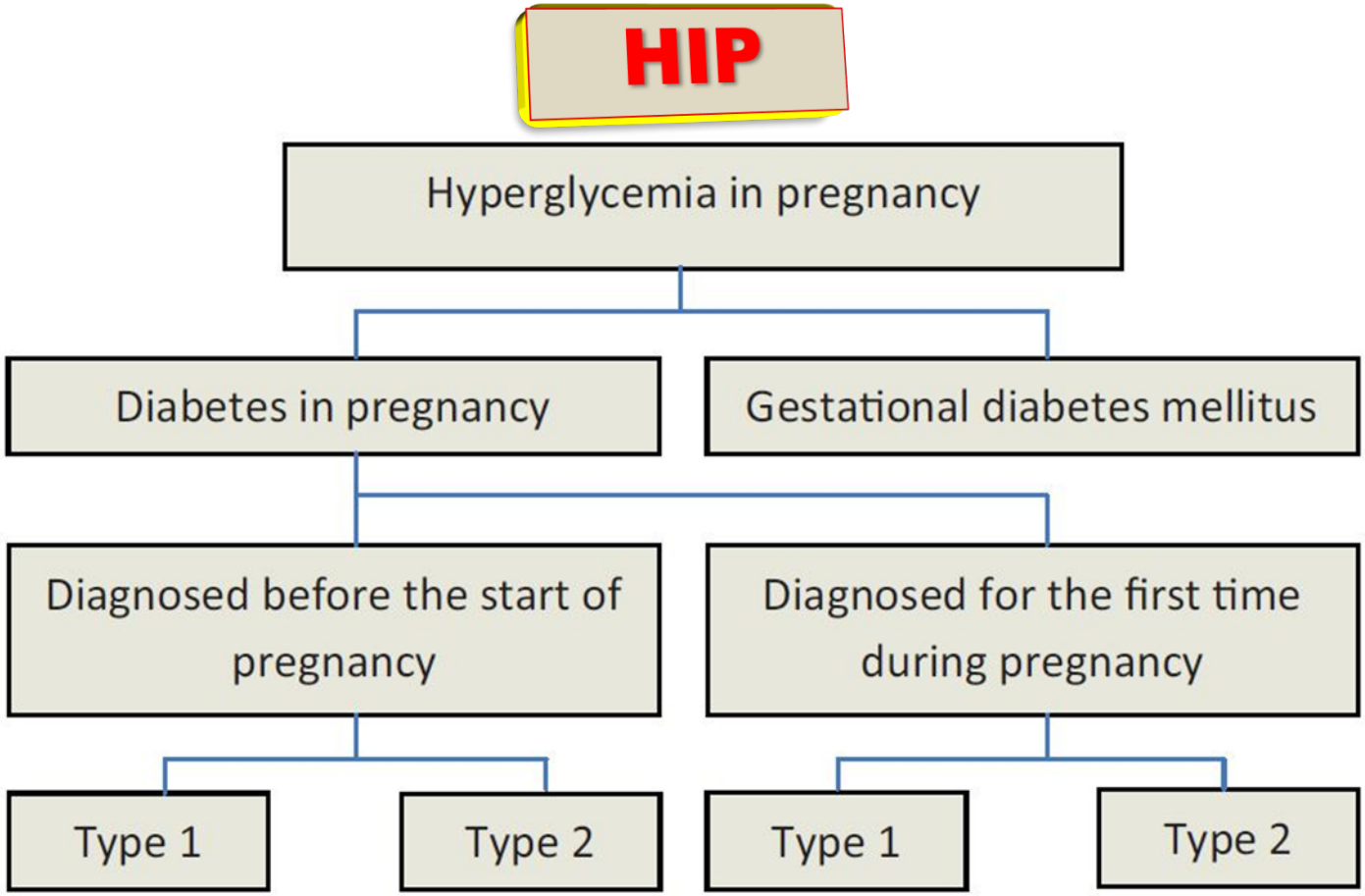

Figure 1 Types of hyperglycemia in pregnancy.

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DIP & GDM = HIP

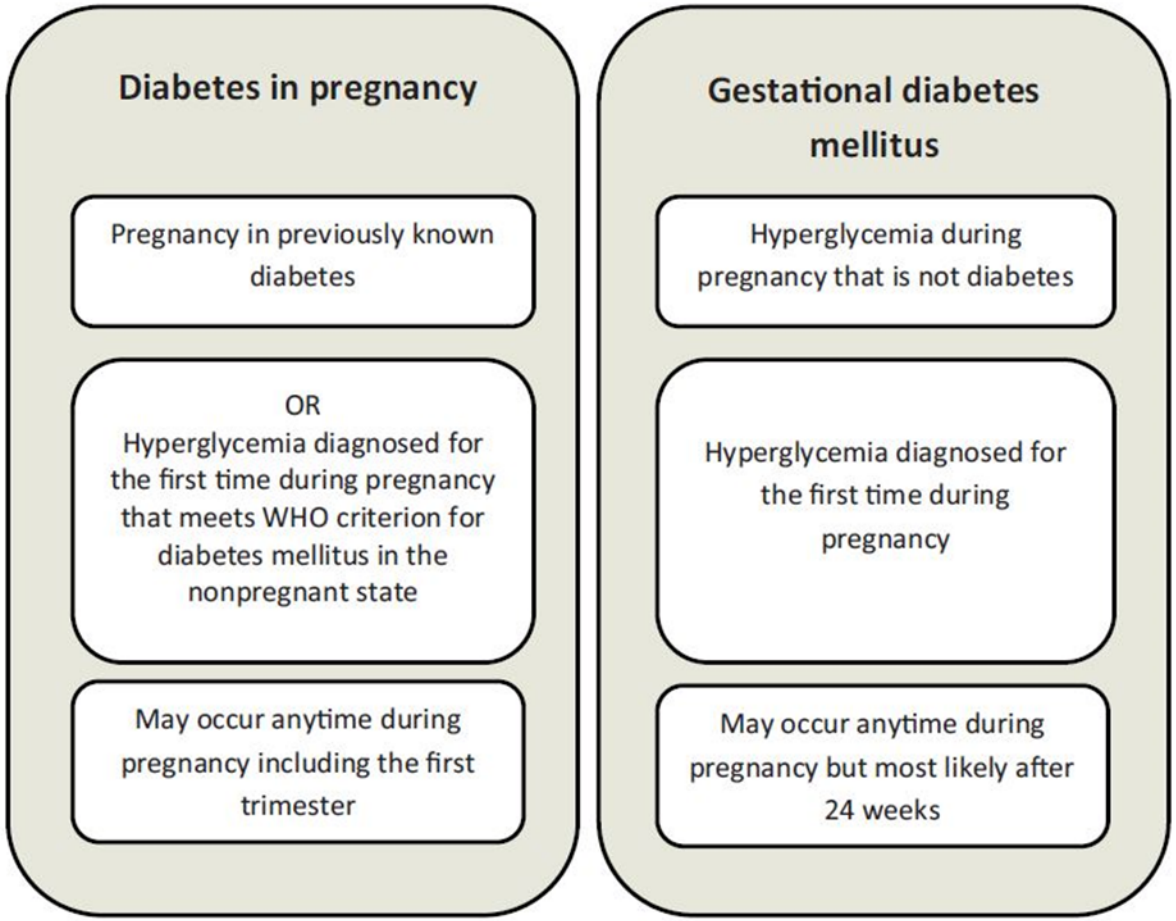

Figure 2: The difference between diabetes in pregnancy and gestational diabetes mellitus.

Significance for global health

Table 3
Maternal and fetal morbidity associated with gestational diabetes mellitus.

Maternal morbidity	Fetal/neonatal/child morbidity
Early pregnancy	Stillbirth
Spontaneous abortions	Neonatal death
Pregnancy	Nonchromosomal congenital malformations
Pre-eclampsia	Shoulder dystocia
Gestational hypertension	Respiratory distress syndrome
Excessive fetal growth (macrosomia, large for gestational age)	Cardiomyopathy
Hydramnios	Neonatal hypoglycemia
Urinary tract infections	Neonatal polycythemia
Delivery	Neonatal hyperbilirubinemia
Preterm labor	Neonatal hypocalcemia
Traumatic labor	Erb's palsy (as consequence of birth injury)
Instrumental delivery	Programming and imprinting; fetal origins of disease: diabetes, obesity, hypertension, metabolic syndrome
Cesarean delivery	
Postoperative/postpartum infection	
Postoperative/postpartum hemorrhage	
Thromboembolism	
Maternal morbidity and mortality	
Hemorrhage	
Puerperium	
Failure to initiate and/or maintain breastfeeding	
Infection	
Long-term postpartum	
Weight retention	
GDM in subsequent pregnancy	
Future overt diabetes	
Future cardiovascular disease	

FIGO Boxes highlight salient points

- FIGO recommends and supports the call for greater attention and focus on the links between maternal health and noncommunicable diseases in the sustainable developmental agenda.

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Advocates Universal Testing

Universal testing: All pregnant women should be tested for hyperglycemia during pregnancy using a one-step procedure and FIGO encourages all countries and its member associations to adapt and promote strategies to ensure this.

- FIGO adopts and supports the IADPSG/WHO/IDF position that all pregnant women should be tested for hyperglycemia during pregnancy using a one-step procedure.
- FIGO encourages all countries and its member associations to adapt and promote strategies to ensure universal testing of all pregnant women for hyperglycemia during pregnancy.

- All countries have an obligation to implement the best GDM testing and management practices they can.
- FIGO acknowledges that for global progress to be made, India, China, Nigeria, Pakistan, Indonesia, Bangladesh, Brazil, and Mexico must be key targets for focused GDM attention

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Universal criteria for diagnosis

Criteria for diagnosis: The WHO criteria for diagnosis of diabetes mellitus in pregnancy [1] and the WHO and the International Association of Diabetes in Pregnancy Study Groups (IADPSG) criteria for diagnosis of GDM [1,2] should be used when possible.

- FIGO adopts the WHO (2013) criteria for diagnosis of diabetes mellitus in pregnancy.
- FIGO adopts the WHO (2013) and IADPSG (2010) criteria for diagnosis of gestational diabetes mellitus. Given the resource constraints in many low-resource countries, other strategies described herein are considered equally acceptable.

Recommendation for diagnosis

Table 4
Options for diagnosis of gestational diabetes mellitus based on resource settings.

	Strategy			
Setting	Who to test and when	Diagnostic test	Interpretation[a]	Grade
Fully resourced settings	All women at booking/first trimester	Measure FPG, RBG, or HbA1c to detect diabetes in pregnancy		1|⊕⊕⊕○
	24–28 weeks	If negative: perform 75-g 2-hour OGTT		
Fully resourced settings serving ethnic populations at high risk[b]	All women at booking/first trimester	Perform 75-g 2-hour OGTT to detect diabetes in pregnancy		2|⊕○○○
	24–28 weeks	If negative: perform 75-g 2-hour OGTT		
Any setting (basic); particularly medium- to low-resource settings serving ethnic populations at risk	All women between 24 and 28 weeks	Perform 75-g 2-hour OGTT		1|⊕⊕⊕○

While this is the optimal recommendation, alternatives are given in acknowledgement of limitations faced in diverse settings

Pragmatic guides for **testing**, **diagnosis** and **management** must be based on each country's available:

- **Finances**
- **Human Resources**
- **Infrastructure Resources**

Standards for lab testing

Technical considerations in laboratory and point of care (POC)testing

- GDM diagnosis should be ideally based on blood tests done in an accredited laboratory on properly collected and transported venous plasma samples.
- FIGO recommends the use of a plasma-calibrated handheld glucometer with properly stored test strips to measure plasma glucose in primary care settings, particularly in low-resource countries, where a close-by laboratory or facilities for proper storage and transport of blood samples to a distant laboratory may not exist. This may be more convenient and reliable than tests done on inadequately handled and transported blood samples in a laboratory. It is recommended that from time to time a few samples are parallel tested in an accredited laboratory to document the variability.
- FIGO recommends that all laboratories and clinical services document their baseline quality and work toward improvement irrespective of the resources available.

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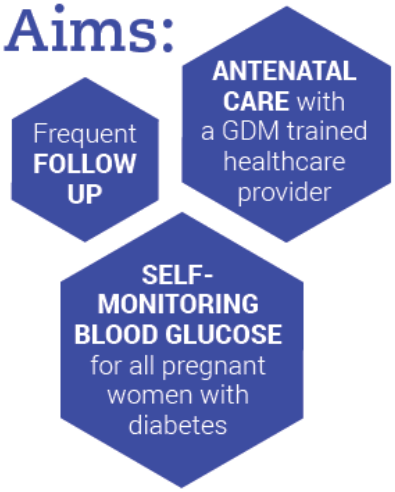
Management of GDM



Management of GDM: Management should be in accordance with available national resources and infrastructure even if the specific diagnostic and treatment protocols are not supported by high-quality evidence, as this is preferable to no care at all.

Box 1

Recommendations for prenatal supervision in women with gestational diabetes mellitus.

Recommendations	Resource setting	Strength of recommendation and quality of evidence
Routine prenatal care should include visits to: • Healthcare professionals skilled in care of women with diabetes in pregnancy (obstetrician, perinatologist, diabetologist, diabetes educator, nutritionist etc): 1–3 weeks as needed • Nurse: Weight, blood pressure, dipstick urine protein: 1-2 weeks as needed	High	1|⊕○○○
Prenatal follow-up determined locally according to available resource: • A minimum of monthly check-ups with a healthcare provider knowledgeable in diabetes in pregnancy	Mid and Low	2|⊕○○○

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Assessing Fetal wellbeing

Box 2

Recommendations for fetal growth assessment in women with gestational diabetes mellitus.

Recommendations	Resource setting	Strength of recommendation and quality of evidence
Clinical and sonographic growth assessments every 2–4 weeks from diagnosis until term	High	1|⊕○○○
Periodic clinical and sonographic growth assessments from diagnosis until term	Mid and Low	2|⊕○○○

Box 3

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|⊕○○○

Delivery for women with GDM

Box 4

Recommendations for timing and mode of delivery in women with gestational diabetes mellitus.

Recommendations	Resource setting	Strength of recommendation and quality of evidence
As per local protocol or as suggested in Figure 4	All	2|⊕○○○

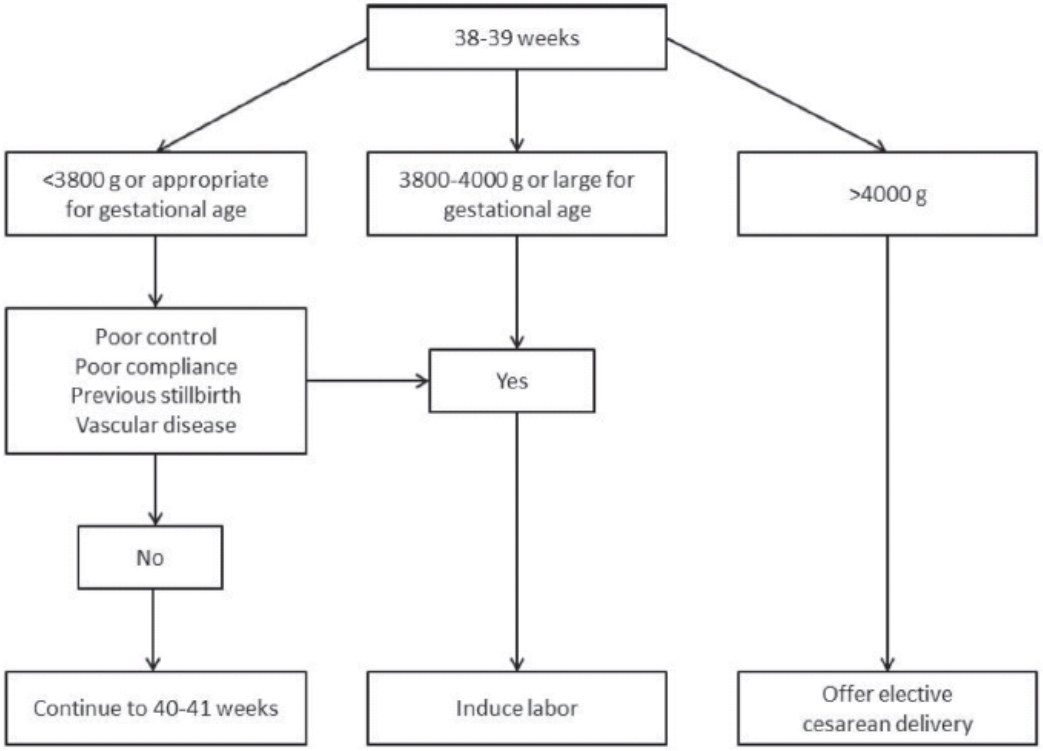

Figure 4. Timing of delivery in women with gestational diabetes mellitus and diabetes in pregnancy.

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Management of GDM

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: • Fasting: once daily, following at least 8 hours of overnight fasting • Postprandial: 2-3 times daily, 1 or 2 hours after the onset of meals, rotating meals on different days of the week	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|⊕◯◯◯

Lifestyle Management

Box 9

Recommendations for nutrition therapy in women with gestational diabetes mellitus.

Recommendations	Resource setting	Strength of recommendation and quality of evidence
We recommend that the following principles should be adhered for all pregnant women with diabetes: • Design an appropriate diet with respect to prepregnancy BMI, desired body weight, physical activity, habits, and personal and cultural preferences. • Provide routine follow-up and diet adjustments throughout pregnancy to achieve and maintain treatment goals. • 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. We suggest that caloric intake be calculated based on prepregnancy BMI and	All	1|⊕⊕○○

- 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 10

Recommendations for physical activity in women with gestational diabetes mellitus.

Recommendations	Resource setting	Strength of recommendation and quality of evidence
We suggest that appropriate, personally adapted, physical activity be recommended for all women with diabetes: • Planned physical activity of 30 min/day • Brisk walking or arm exercises while seated in a chair for 10 min after each meal. • Women physically active prior to pregnancy should be encouraged to continue their previous exercise routine.	All	2|⊕⊕○○

Treatment of GDM

FIGO

Box 11

Recommendations for pharmacological treatment in women with gestational diabetes mellitus.

Recommendations	Resource setting	Strength of recommendation and quality of evidence
Insulin, glyburide, and metformin are safe and effective therapies for GDM during the second and third trimesters, and may be initiated as first-line treatment after failing to achieve glucose control with lifestyle modification. Among OADs, metformin may be a better choice than glyburide [109].	All	2|⊕⊕◯◯
Insulin should be considered as the first-line treatment in women with GDM who are at high risk of failing on OAD therapy, including some of the following factors [129]: • Diagnosis of diabetes <20 weeks of gestation • Need for pharmacologic therapy >30 weeks • Fasting plasma glucose levels >110 mg/dL • 1-hour postprandial glucose >140 mg/dL • Pregnancy weight gain >12 kg	High	2|⊕⊕◯◯

Box 12

Recommendations for insulin treatment in women with gestational diabetes mellitus.

Recommendations	Resource setting	Strength of recommendation and quality of evidence
The following insulins may be considered safe and effective treatment during pregnancy: regular insulin, NPH, lispro, aspart and detemir.	All	1|⊕⊕⊕◯

Pre-conception and inter-pregnancy

Increase acceptance and access to **preconception services**

Universal pre-conception screening for malnutrition, anemia, overweight and obesity, hypertension, diabetes and thyroid dysfunction

- FIGO calls for public health measures to increase awareness and acceptance of preconception counseling and to increase affordability and access to preconception services to women of reproductive age, as this is likely to have both immediate and lasting benefits for maternal and child health.

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Postpartum care

- 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

ADVICE on pregnancy spacing

RETEST all women with GDM at 6-12 weeks postpartum

Future blood glucose **TESTS**

Focus and dissemination

All countries have an obligation to implement the best testing and management practices they can!

PRIORITY COUNTRIES:
India, China, Nigeria, Pakistan, Indonesia, Bangladesh, Brazil and Mexico

These **8 countries** account for **55% of global live births** and **55% of the global burden of diabetes**

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FIGO Vancouver

XXI FIGO World Congress of Gynecology and Obstetrics
4 - 9 October 2015

IDF 2015 Vancouver world diabetes congress 30 November – 4 December

Working Group on Hyperglycaemia in Pregnancy (HIP)

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Dec 2013 → **Oct 2015**

FIGO Expert Group on GDM established

Launch of guidelines on diagnosis, management and care

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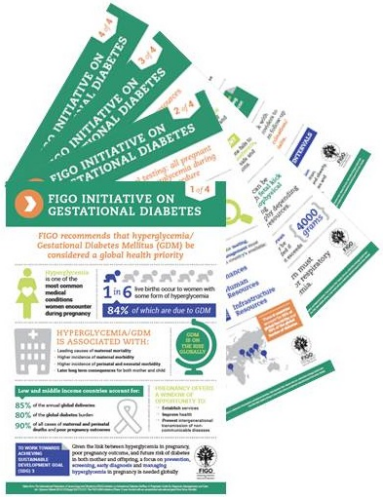
Key Milestones



Oct 2018 ← **Jan 2016**

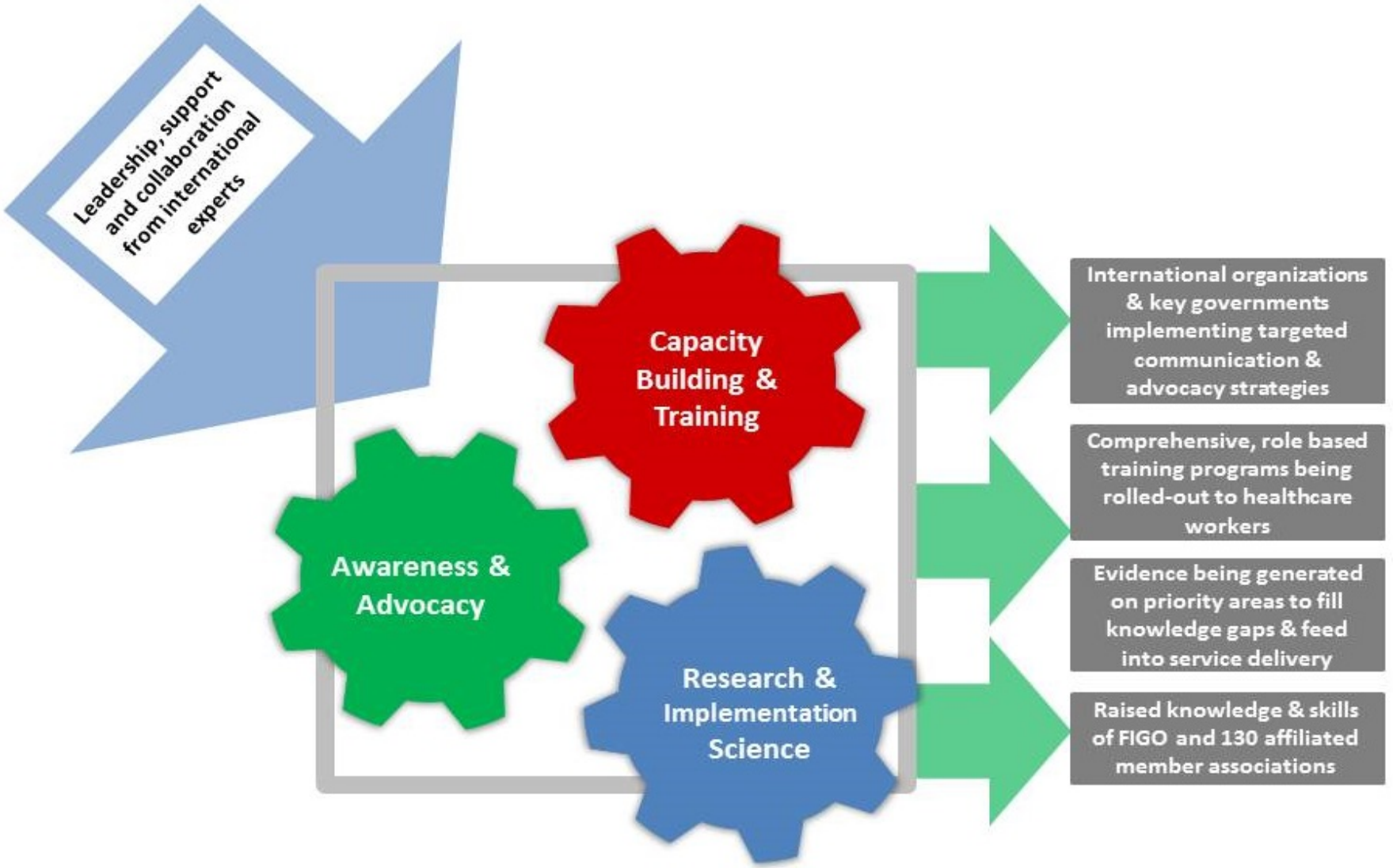
Report on successes at FIGO World Congress

FIGO Working Group on HIP instated

*"Training, advocacy and evidence generation on hyperglycaemia in pregnancy to **reduce** poor pregnancy outcomes; **decrease** maternal and neonatal morbidity and mortality; and **cut** future risk of diabetes & cardio-vascular disease"*

Research | **Capacity Building & Training** | **Awareness & Advocacy**

The next three years ….



Working Group
Hyperglycaemia in Pregnancy (HIP)

Awareness and Advocacy

GOAL - International organizations and key governments implementing targeted communication and advocacy strategies

FIGO will enagage with major organisations (NGOs, UN Organisations, professional ossociations and government agencies) working in the field of maternal health to recognize that hypeglycaemia in pregnancy is a key issue impacting maternal and women's health, that needs to be addressed as part of Sustainable Development Goal 3 on health and welbeing.

Working Group
Hyperglycaemia in Pregnancy (HIP)

Capacity Building and Training

GOAL - Comprehensive, role based training programs being rolled-out to healthcare workers; and to improve the knowledge, skills and attitudes of FIGO affiliates in the management of HIP

FIGO will develop and implement comprehensive and competancy based learning resource package (LRP) training on HIP to healthcare workers at all levels. FIGO will assist its member organizations to roll out the training on HIP using the newly developed LRP.

Working Group
Hyperglycaemia in Pregnancy (HIP)

Research Network

GOAL: To identify and implement a research agenda which will address priority gaps in knowledge of HIP

FIGO will develop a prioritized research agenda based on the broad needs identified by the FIGO recommendations, create a research network which will work towards conducting research aimed at addressing priority gaps.

The three year work plan for the FIGO Hyperglycemia in Pregnancy (HIP)Group is relatively short for the development, funding, conduct and analysis of a major individual research project(s).

Nonetheless, the FIGO Research Network will achieve some short-term goals to demonstrate its key coordinating role in shaping the global research agenda regarding HIP.

The International Federation of Gynecology and Obstetrics (FIGO) Initiative on Gestational Diabetes Mellitus: A Pragmatic Guide for Diagnosis, Management and Care which as published in the International Journal of Gynecology and Obstetrics (IJGO) in October 2015,

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Do it the FIGO way!

TAKE HOME MESSAGES

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Hyperglycemia In Pregnancy

- ***The most common medical conditions women encounter during pregnancy***
- ***Is associated with :***
  - ✓ **Leading causes of maternal mortality**
  - ✓ **Higher incidence of maternal morbidity**
  - ✓ **Higher incidence of perinatal and neonatal morbidity**
  - ✓ **Later long term consequences for both mother and child**
- ***Pregnancy offers a window of opportunity to:***
  - ✓ **Establish services**
  - ✓ **Improve health**
  - ✓ **Prevent intergenerational transmission no communicable diseases**

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➢ *FIGO recommends*

All pregnant women should be tested for hyperglycemia during pregnancy

- **Universal testing**
- **A one-step procedure**

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The postpartum period

- ***An important platform to initiate early preventive health for mother and offspring who are both at higher risk of:***

  - **Future Obesity**
  - **Metabolic Syndrome**
  - **Diabetes**
  - **Hypertension**
  - **Cardiovascular Disorders**

The FIGO HIP Working Group

Thank you for listening

www.figo.org

Contact Jessica@figo.org and Matt@figo.org for more information