**Seminar and Workshop on**
**Maternal, Infant and Young Child Nutrition:**
*Maternal Nutrition and Birth Outcomes in Southeast Asia*

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**GDM in the Philippines:**
*Prevalence, Impact and Control*

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**Objectives**

- To present the prevalence of GDM in the Philippines
- To cite the impact of GDM on both infants and mothers
- To enumerate the existing efforts to prevent and manage GDM and the challenges faced in the Philippines

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**Diabetes**

- A chronic disease now with increasing prevalence globally
- Major impact on low to middle income countries like the Philippines
- By 2025: WHO predicted that Asia will have the greatest increase in the number of people with diabetes
Philippines

- Located in Southeast Asia, in western Pacific Ocean
- 7101 islands; 115, 831 square miles of land area
- 5th longest coastline in the world (22,549 square miles)
- Population 2017: 104.9 million
- 14 regions, 73 provinces, 60 cities

Health indicators: Philippines

- NCDs including diabetes account for 6 out of 10 top causes of mortality
- Infections and preventable diseases declining but increasing trend in lifestyle-related diseases
- Leading causes of death: CVDs, malignancies, diabetes and chronic lower respiratory diseases

FNRI 8th National Nutrition Survey 2013

- Prevalence of high FBS based on WHO criterion of > 125 mg/dl for individuals > 20 years old:
  - 5.4% vs. 4.8% in 2008
- Highest prevalence among richest, living in urban areas and in those 60-69 years old for both sexes

International Diabetes Federation: Global Atlas 2017

- Philippines
  - Total adult population 60,327,000
  - Prevalence of diabetes in adults 6.2%
  - Total cases of diabetes in adults 3,721,900
**International Diabetes Federation: Global Scorecard 2013**

- Estimated costs per person:
  
  - Philippines = $205 vs. Thailand ($285)
  - Indonesia ($174.7)

**Hyperglycemia during pregnancy**

**Classification:**
1. Gestational diabetes: with slightly elevated blood glucose
2. Diabetes mellitus in pregnancy: with substantial elevation of blood glucose; does not resolve after pregnancy

**GDM in the Philippines Prevalence**

- Published data from the Asian Federation of Endocrine Societies Study Group on Diabetes in Pregnancy (ASGODIP) 1996:
  
  prevalence = 14% in 1203 pregnancies


- Hospital data: UST hospital Jan- Dec 2009
  
  prevalence = 7.5%

  *Lim-Uy SW, et al. Phil J Int Med 2010;48*

**GDM in the Philippines Prevalence**


<table>
<thead>
<tr>
<th></th>
<th>Vaginal</th>
<th>Abdominal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of deliveries</td>
<td>119895</td>
<td>52048</td>
<td>171943</td>
</tr>
<tr>
<td>Diabetes mellitus, insulin dependent, number (%)</td>
<td>101 (0.08%)</td>
<td>161 (0.31%)</td>
<td>262 (0.15%)</td>
</tr>
<tr>
<td>Diabetes mellitus, non-insulin dependent, number (%)</td>
<td>123 (0.10%)</td>
<td>183 (0.35%)</td>
<td>306 (0.17%)</td>
</tr>
<tr>
<td>Gestational diabetes, number (%)</td>
<td>1541 (1.2%)</td>
<td>1497 (2.8%)</td>
<td>3038 (1.7%)</td>
</tr>
</tbody>
</table>
Cohorts of Filipino women with GDM

1. Cardinal Santos Medical Center:
   > 75% diagnosed at 26-28 weeks gestational age

2. Veterans Memorial Medical Center:
   50% diagnosed at 31-40 weeks gestational age

Risk factors for GDM


- Increasing BMI (OR 1.5)
- Family history of DM (OR 6.3)
- Hormonal contraceptive use (OR 8.48)

GDM: Increased Risk for Perinatal Morbidity

- Macrosomia
- Shoulder dystocia
- Birth injuries
- Hypoglycemia

GDM: Increased Risk for Maternal Morbidity

- Cesarean delivery
- Pre-eclampsia
- Pregnancy-induced hypertension
- Type 2 DM
Impact of GDM

*Lim-Uy SW, et al. Phil J Int Med 2010;48*

Cesarean delivery

(OR 2.76)

Low Apgar score at 1 minute

(OR 0.31)

Diabetes Care in the Philippines

I. National Health Care Insurance
   
   - **PHILHEALTH**: government corporation that aims to ensure universal health insurance for all Filipinos
   
   A. Outpatient Benefits: Philhealth Primary Care Benefit 2 Package (PCB2)
      
      - Will pay for outpatient medicines for qualified members and dependents
      
      - For indigents and sponsored members: only one per family
      
      - Limited medications: only sulfonylurea (glibenclamide) and metformin provided on a monthly basis
      
      - Price cap reimbursed
      
      - Majority: “out of pocket” expenses, unless with private health insurance

II. Diabetes Clinics

A. In government hospitals
   
   - Offer free consultation, affordable medicines for underprivileged

B. In the community: barangay health centers
   
   - Basic primary health care deliveries, e.g. diabetes self-management, basic measures (BP, BMI)

C. Private clinics
   
   - With specialists
   
   - 7 training institutions, certified endocrinologists, diabetologists

Tan GH. Annals of Global Health 2015;81
Diabetes Care in the Philippines

III. Availability of Medications

– Most diabetes medications available in the Philippines
– Off-patent medications available as generics
– DiabCare study on T2D (2012)
  78.5% of study population on oral antidiabetes
  42% on insulin


Diabetes Care in the Philippines

IV. Metabolic Control

– Self-monitoring of blood glucose not usually practiced
– Choose to buy medications instead of test strips
– 16.1 % in 2003 vs. 46.5% in 2008


Summary of Recommendations: Screening and Diagnosis of Gestational Diabetes Mellitus (GDM)

Philippine Practice Guidelines for the Diagnosis and Management of Diabetes Unite for Diabetes 2011

• All pregnant women should be screened for gestational diabetes (Grade B, Level 2).
• All pregnant women should be evaluated at the first prenatal visit for risk factors for diabetes (Grade C, Level 4).
  – Prior history of GD M
  – Glucosuria
  – Family history of diabetes
  – First-degree relative with type 2 diabetes
  – Prior macrosomic baby
  – Age >25 years old
  – Diagnosis of polycystic ovary syndrome
  – Overweight/obese before pregnancy
  – Macrosomia in current pregnancy
  – Polyhydramnios in current pregnancy
  – Intake of drugs affecting carbohydrate metabolism
Summary of Recommendations: Screening and Diagnosis of Gestational Diabetes Mellitus (GDM)

*Philippine Practice Guidelines for the Diagnosis and Management of Diabetes Unite for Diabetes 2011*

- High-risk women should be screened at the soonest possible time (Grade B, Level 3).
- Routine testing for gestational diabetes is recommended at 24 to 28 weeks age of gestation for women with no risk factors (Grade B, Level 3).
- Testing for gestational diabetes should still be carried out in women at risk, even beyond 24 to 28 weeks age of gestation (Grade C, Level 3).
- An oral glucose tolerance test (OGTT), preferably the 75-g OGTT, should be used to screen for gestational diabetes (Grade B, Level 3).
- The criteria of the International Association of Diabetes & Pregnancy Study Groups (IADPSG) should be used to interpret the 75-g OGTT (Grade B, Level 3) where any one value meeting threshold is considered gestational diabetes.

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**Diabetes Care in the Philippines**

**VI. Availability and Affordability of Lab Tests**
- Most tests are available
- Issue: Standardization of A1c assay not accurately established
- CPG: A1c can not be used for diagnosis
  - Recommended: FBS, RBS, 2 hour OGTT
  - A1c used for glucose control monitoring
- Comprehensive lab testing for evaluation: not affordable to majority

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Summary of Recommendations: Screening and Diagnosis of Gestational Diabetes Mellitus (GDM)

*Philippine Practice Guidelines for the Diagnosis and Management of Diabetes Unite for Diabetes 2011*

- The following tests should NOT be used for the diagnosis of diabetes in pregnancy: Capillary Blood Glucose, FBS, RBS, HbA1c, Fructosamine, Urine Glucose
- However, if patients already have FBS or RBS at the time of consultation, thresholds for DM will be the same as non-pregnant individuals. Those with glucosuria, elevated CBG or HbA1c should undergo OGTT.

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**Diabetes Care in the Philippines**

**VII. Family Support**
- Distinct feature of Filipinos: strong family unit
- Parents taken cared of by children; children taken cared of by parents and siblings
- Diabetes: receives strong family support
- Financial burden from medicines to laboratories shouldered/shared by families
- Nursing homes: not practiced in the Philippines
Conclusions

- Prevalence of diabetes in the Philippines in general is increasing.
- Gap in GDM: more comprehensive, nationwide, updated data
- GDM impacts on both infants and mothers.
- Efforts to control and manage GDM (and diabetes in general) in the Philippines continue to be a challenge. Key features of diabetes care in the Philippines include:
  - “out of pocket” system of health care continues to be the main mechanism of patient-doctor relationship and compensation.

Conclusions

- Key features of diabetes care in the Philippines include:
  - National insurance system does not allow comprehensive coverage of diabetes management; only limited to certain household members and provides limited medication coverage.
  - Both generic and branded antidiabetes medicines are readily available including insulin.
  - Metformin and sulfonylureas are most commonly prescribed due to availability and cheaper cost
  - Diabetic individuals receive strong family support

Conclusions

- Clinical practice guidelines have been developed and available for use.
- It is recommended that fundamental changes are necessary to increase awareness, emphasize lifestyle change and promote public policies particularly in the health insurance system to improve overall diabetes care and outcomes.