

# What is Diabetes?

## A-Nosology

Diabetes mellitus is a chronic disease characterized by abnormal metabolism of *glucose* (blood sugar) as well as other nutrients such as protein and fat, and accompanied by the risk of long-term complications specific to diabetes that affect the heart, eye, kidney and nervous system.

Diabetes prevalence is increasing worldwide (**90%** of diabetes cases are type 2 diabetes).

In 2019, **463 million** people had diabetes and 5.1 million died from diabetes

In 2045, an estimated **700 million** people will have diabetes.

Every six seconds a person dies from diabetes.

In Lebanon, its prevalence is determined at **7.95%** of the general population. This prevalence increases to **11%** when we add the undiagnosed and asymptomatic cases.

## B-Impact of the T2DM epidemic

Cardiovascular death rates increasing in countries with increasing diabetes prevalence

Half of all costs of diabetes spent on cardiovascular complications

In 2013, direct costs of diabetes worldwide: 548 billion US dollars

By 2030, expected to increase to 627 billion US dollars

Currently 11% of healthcare budgets are spent on diabetes

## C-Diabetes and CVD

In people with diabetes:

1. Heart disease strikes people with diabetes, twice as often as people without diabetes.
2. CVS complications occur at an earlier age and often result in premature death.
3. Diabetics are 2-4 times more likely to suffer strokes and once having had a stroke, are 2-4 times as likely to have a recurrence.
4. Deaths from heart disease in diabetic women have increased 23 %over the past 30 years compared to a 27 % decrease in women without diabetes.
5. Deaths from heart disease in men with diabetes have decreased by only 13 % compared to a 36 % decrease in men without diabetes.

## D-Types of Diabetes Mellitus (DM)

1. Type 1 diabetes: Due to b autoimmune  $\beta$ -cell destruction, usually leading to absolute insulin deficiency
2. Type 2 diabetes: Due to a progressive loss of adequate  $\beta$ -cell insulin secretion frequently on the background of insulin resistance.
3. Gestational diabetes mellitus (GDM): Diabetes diagnosed in the 2<sup>nd</sup> or 3<sup>rd</sup> trimester of pregnancy that was not clearly Overt diabetes prior to gestation)
4. Specific types of diabetes due to other causes:

Monogenic diabetes syndromes (such as neonatal diabetes & maturity-onset diabetes of the young [MODY])  
Diseases of the exocrine pancreas (such as cystic fibrosis and pancreatitis)  
Drug- or chemical-induced diabetes (such as with glucocorticoid use, HIV/AIDS treatment)

## **E-Symptoms of type 2 diabetes**

Polydipsia Excessive thirst  
Polyphagia Excessive desire to eat  
Polyuria Excessive passage of urine  
Blurred vision Loss of sharpness of vision  
Fatigue Physical and/or mental exhaustion  
Genital itching Genital discomfort  
Retarded wound healing impaired healing  
Unexplained weight loss Reduction in weight

## **F-Diagnosis of type 2 diabetes**

Fasting plasma glucose (FPG):  $\geq 126$  mg/dL (7.0 mmol/L)  
Fasting is defined as no caloric intake for at least 8 hours

OR

Oral glucose tolerance test (OGTT):  
2-h plasma glucose  $\geq 200$  mg/dL (11.1 mmol/L)  
Test should be performed as per WHO guidance, using glucose load with equivalent of 75 g anhydrous glucose dissolved in water\*

OR

HbA1C  $\geq 6.5\%$   
Test should be performed in a laboratory using certified method and standardised assay

OR

For patient with classic symptoms of hyperglycaemia or hyperglycaemic crisis: random plasma glucose  $\geq 200$  mg/dL (11.1 mmol/L)

## **G-Pharmacist Role on the Diabetes Care Team**

- In 2003, the American Diabetes Association formally included pharmacists as integral members of diabetes care teams.
- As a pharmacist, you can help your diabetes patients by:

- ✓ Completing periodic medication reviews
- ✓ Providing diabetes-specific patient education and consultation
- ✓ Monitoring treatment outcomes and asking patients to track their blood glucose
- ✓ Monitoring medication compliance at every refill
- ✓ Partnering with other health professionals to provide continuity of care

### Research shows...

- Community pharmacists are considered the most accessible member of diabetes patients' care team, because appointments are not required to seek their expertise.
- Research shows that interactions between a pharmacist and diabetic patient improve health outcomes.
- Overall, A1c levels were reduced up to 1% following a pharmacist-patient consult.
- Significant reductions were also reported in:
  - Total cholesterol
  - Low-density lipoprotein cholesterol (LDL)
  - Body mass index (BMI)

### Questions to Ask Your Diabetes Patients

How a medication is working for a patient will be on their mind when ordering and picking up refills from your pharmacy. This is a good time to **check in with your patients** and ask them a few questions, such as:

- ✓ What is the A1c target set by your doctor?
- ✓ When did you last perform an A1c test?
- ✓ What was your last A1c level?
- ✓ Are you checking your blood glucose levels regularly and as recommended by your doctor?
- ✓ What is your typical morning/fasting blood sugar range?
- ✓ Are you confident that your blood glucose monitor is working correctly?

### References:

- 1-ADA Standards of Medical Care in Diabetes 2-2013 Diabetes Care 2013;36(Suppl. 1):S11–S66
- 3-CVD, cardiovascular disease; T2D, type 2 diabetes
- 4-Stratton et al. BMJ 2000;321:405–12. 2. Shetty et al. J Manag Care Pharm 2005;11:559–64; 3. Giugliano et al. Diab Care. 2011;34:510–517
- 5-Mortality risk associated with diabetes vs no diabetes (n=820,900).
- 6-CV, cardiovascular.Rao Kondapally Seshasai S et al. N Engl J Med 2011;364:829–41.
- 7-American Diabetes Association, Standard of Care 2020

