Canadian Diabetes Association Clinical Practice Guidelines (2013)[1-3]

Summary screening and diagnosis of diabetes
-Screening

Risk factors for type 2 diabetes

- Age ≥40 years
- First-degree relative with type 2 diabetes
- Member of high-risk population (e.g. Aboriginal, African, Asian, Hispanic or South Asian descent)
- History of prediabetes (IGT, IFG or A1C 6.0%–6.4%)*
- History of gestational diabetes mellitus
- History of delivery of a macrosomic infant
- Presence of end organ damage associated with diabetes:
    - Microvascular (retinopathy, neuropathy, nephropathy)
    - Macrovascular (coronary, cerebrovascular, peripheral)
- Presence of vascular risk factors:
    - HDL cholesterol level <1.0 mmol/L in males, <1.3 mmol/L in females*
    - Triglycerides ≥1.7 mmol/L*
    - Hypertension*
    - Overweight*
    - Abdominal obesity*
- Presence of associated diseases:
    - Polycystic ovary syndrome*
    - Acanthosis nigricans*
    - Psychiatric disorders (bipolar disorder, depression, schizophrenia[†])
    - HIV infection[‡]
    - OSA[§]
- Use of drugs associated with diabetes:
    - Glucocorticoids
    - Atypical antipsychotics
   - HAART[‡]
    - Other
- Other secondary causes

A1C, glycated hemoglobin; HAART, highly active antiretroviral therapy; HDL, high-density lipoprotein; HIV, human immunodeficiency virus-1; IFG, impaired fasting glucose; IGT, impaired glucose tolerance; OSA, obstructive sleep apnea
* Associated with insulin resistance
-The incidence of type 2 diabetes is at least 3 times higher in people with schizophrenia than in the general population
-HIV and HAART increase the risk of prediabetes (IGT) and type 2 diabetes by 1.5- to 4-fold compared to the general population
-OSA is an independent risk factor for diabetes (hazard ratio 1.43)
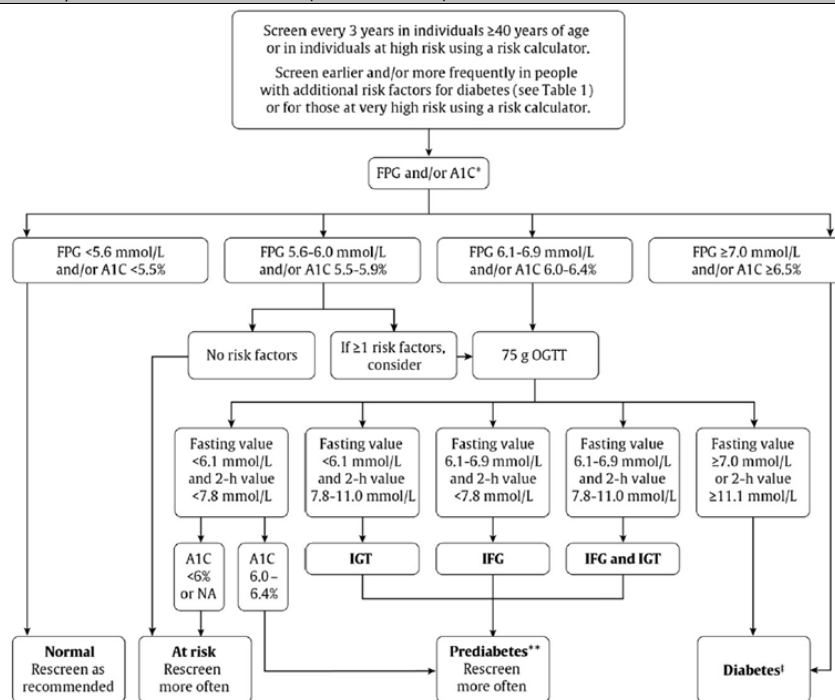
*If both fasting plasma glucose (FPG) and glycated hemoglobin (A1C) are available but discordant, use the test that appears furthest to the right side of the algorithm
**Prediabetes = impaired fasting glucose (IFG), impaired glucose tolerance (IGT), or A1C 6.0% to 6.4%
‡ In the absence of symptomatic hyperglycemia, if a single laboratory test is in the diabetes range, a repeat confirmatory test (FPG, A1C, 2hPG in a 75 g OGTT) must be done on another day. It is preferable that the same test be repeated (in a timely fashion) for confirmation. If results of 2 different tests are available and both are above the diagnostic cutpoints, the diagnosis of diabetes is confirmed. NA = not available; OGTT = oral glucose tolerance test.

Diagnosis of diabetes

FPG ≥7.0 mmol/L
Fasting = no caloric intake for at least 8 hours
or
A1C ≥6.5% (in adults)
Using a standardized, validated assay in the absence of factors that affect the
accuracy of the A1C and not for suspected type 1 diabetes
or
2hPG in a 75 g OGTT ≥11.1 mmol/L
or
Random PG ≥11.1 mmol/L
Random = any time of the day, without regard to the interval since the last meal

1. In the absence of symptomatic hyperglycemia, if a single laboratory test result is in the diabetes range, a repeat confirmatory laboratory test (FPG, A1C, 2hPG in a 75 g OGTT) must be done on another day.
2. It is preferable that the same test be repeated (in a timely fashion) for confirmation, but a random PG in the diabetes range in an asymptomatic individual should be confirmed with an alternate test.
3. In the case of symptomatic hyperglycemia, the diagnosis has been made and a confirmatory test is not required before treatment is initiated.
4. In individuals in whom type 1 diabetes is likely (younger or lean or symptomatic hyperglycemia, especially with ketonuria or ketonemia), confirmatory testing should not delay initiation of treatment to avoid rapid deterioration.
5. If results of 2 different tests are available and both are above the diagnostic cutpoints, the diagnosis of diabetes is confirmed.

Diagnosis of prediabetes

Test	Result	Prediabetes category
FPG (mmol/L)	6.1−6.9	IFG
2hPG in a 75 g OGTT (mmol/L)	7.8−11.0	IGT
A1C (%)	6.0−6.4	Prediabetes

Harmonized definition of the metabolic syndrome: ≥3 measures to make the diagnosis of metabolic syndrome* (29)

Measure	Categorical cutpoints	
	Men	Women
Elevated waist circumference (population- and country-specific cutpoints):		
• Canada, United States	≥102 cm	≥88 cm
• Europid, Middle Eastern, sub-Saharan African, Mediterranean	≥94 cm	≥80 cm
• Asian, Japanese, South and Central American	≥90 cm	≥80 cm
Elevated TG (drug treatment for elevated TG is an alternate indicator[†])	≥1.7 mmol/L	
Reduced HDL-C (drug treatment for reduced HDL-C is an alternate indicator[†])	<1.0 mmol/L in males, <1.3 mmol/L in females	
Elevated BP (antihypertensive drug treatment in a patient with a history of hypertension is an alternate indicator)	Systolic ≥130 mm Hg and/or diastolic ≥85 mm Hg	
Elevated FPG (drug treatment of elevated glucose is an alternate indicator)	≥5.6 mmol/L	

Summary screening and diagnosis of gestational diabetes
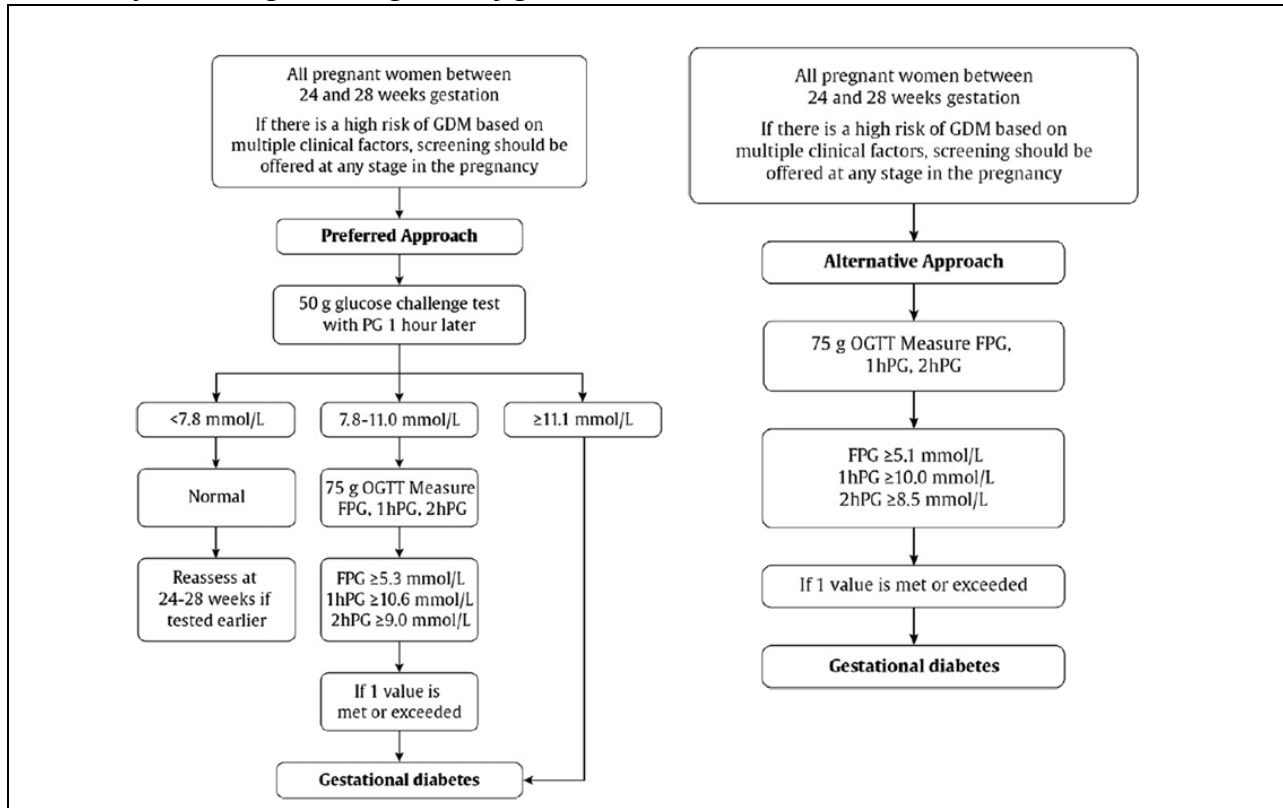
1. All pregnant women should be screened for GDM at 24-28 weeks of gestation
2. If there is a high risk of GDM based on multiple clinical factors, screening should be offered at any stage in the pregnancy.
3. If the initial screening is performed before 24 weeks of gestation and is negative, rescreen between 24 and 28 weeks of gestation.
4. Risk factors include:
   - Previous diagnosis of GDM
   - Prediabetes
   - Member of a high-risk population (Aboriginal, Hispanic, South Asian, Asian, African)
   - Age _35 years
   - BMI _30 kg/m2
   - PCOS, acanthosis nigricans
   - Corticosteroid use
   - History of macrosomic infant
   - Current fetal macrosomia or polyhydramnios

References

1- Goldenberg and Punthakee, Clinical Practice Guidelines: Definition, Classification and Diagnosis of Diabetes, Prediabetes and Metabolic Syndrome. Canadian Journal of Diabetes, 37 (2013) S8 – S11

2- Ekoé et al. Clinical Practice Guidelines: Screening for Type 1 and Type 2 Diabetes. Canadian Journal of Diabetes, 37 (2013) S12 – S15,

3- Thompson et al., Clinical Practice Guidelines: Diabetes and Pregnancy. Canadian Journal of Diabetes, 37 (2013) S168 – S183.