Screening and Detection of Diabetes and Pre-diabetes

Disclaimer

This pathway covers the detection of type 2 diabetes and prediabetes.

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Assessment

Screening

1. Use the Australian Type 2 Diabetes Risk Assessment Tool (AUSDRISK) and screen for diabetes risk:
   - Opportunistically, particularly in obese patients.
   - Three yearly from the age of:
     - 40 years for general population, or
     - 18 years for Aboriginal and Torres Strait Islander people.
   - If patient is at high risk, also screen with fasting blood glucose or HbA1c every 3 years.

   **At-risk groups**
   - People with AUSDRISK score of 12 or more
   - Established cardiovascular disease e.g., acute myocardial infarction (AMI), angina, peripheral vascular disease (PVD), or stroke
   - Aboriginal and Torres Strait Islander aged > 35 years
   - People aged ≥ 35 years from China, the Pacific Islands, or Indian subcontinent
   - People aged > 40 years with body mass index (BMI) > 30 or hypertension
   - People on antipsychotic drugs or glucocorticoids
   - Polycystic ovarian syndrome and BMI > 30
   - History of gestational diabetes

   - If patient with prediabetes i.e., impaired glucose tolerance or impaired fasting glycaemia, or both, screen with fasting blood glucose or HbA1c annually.

   **Impaired glucose tolerance**
   Diagnosed with oral glucose tolerance test:
   - Fasting glucose < 7 mmol/L
   - 2 hour glucose between 7.8 and 11 mmol/L

   **Impaired fasting glycaemia**
   Diagnosed with oral glucose tolerance test:
   - Fasting glucose 6.1 to 6.9 mmol/L
   - 2 hour glucose < 7.8 mmol/L

   - Patients aged 40 to 49 years (or 18 to 54 years for Aboriginal and Torres Strait Islander people) with a high AUSDRISK score > 12 are eligible for a Type 2 Diabetes Risk Evaluation Health Assessment (MBS Items 701, 703, 705, and 707) by their general practitioner.

2. If symptomatic, perform blood glucose assessment.

   **Symptoms**
   - Polyuria, nocturia
   - Polydipsia
   - Lethargy, fatigue
   - Weight loss
   - Blurred vision
   - Poor wound healing
   - Loss of sensation e.g., touch, vibration, cold
   - Frequent fungal or bacterial infections (including UTIs, vaginal thrush)
Diagnosis

1. Test to diagnose **type 2 diabetes**, impaired glucose tolerance, or impaired fasting glycaemia.

**Type 2 diabetes**
- If asymptomatic – diagnosed on basis of:
  - oral glucose tolerance test (OGTT) with fasting blood glucose (FBG) ≥ 7.0 mmol/L or 2-hour glucose ≥ 11.0 mmol/L.
  - FBG ≥ 7.0 mmol/L or random glucose ≥ 11.0 mmol/L and second high FBG on another day.
  - HbA1c ≥ 48 mmol/mol (6.5%), on two separate occasions.
- If **symptomatic** – a single elevated FBG ≥ 7.0 mmol/L, or a random blood glucose ≥ 11.1 mmol/L.

2. Where possible use fasting blood glucose tests in preference to HbA1c.

3. **If medical conditions** present, that may reduce HbA1c levels and lead to a false negative result.

   **Conditions that may reduce HbA1c levels**
   - Increased reticulocyte count (erythropoiesis)
   - Iron, vitamin B12 or folate administration
   - Erythropoietin therapy
   - Chronic liver disease
   - Haemoglobinopathies, methaemoglobinaemia

   **Haemoglobinopathies**
   The common heterozygote haemoglobinopathies do not cause problems with most current assays, but general practitioners are advised to contact the laboratory for further information.
   - Aspirin, vitamins C and E
   - Certain medications e.g., antiretroviral agents, ribavirin, dapsone
   - Hypertriglyceridaemia

4. If diabetes type uncertain, consider:
   - latent autoimmune diabetes of adults (LADA) and maturity onset diabetes of the young (MODY).

   **Latent autoimmune diabetes of adults (LADA)**
   - Defines the subgroup of adult diabetes patients who are classified clinically as having type 2 diabetes, but test positive for islet autoantibodies.
   - Is sometimes called type 1.5 diabetes.
   - Demonstrates many of the genetic, immune, and metabolic features of type 1 diabetes, and carries a high risk of progression to insulin dependency.
   - Is found in about 10% of initially non-insulin-requiring people with diabetes, and is therefore probably more prevalent than type 1 diabetes.
   - Refer for specialist assessment and genetic testing.

   **Maturity onset diabetes of the young (MODY)**
   - Affects approximately 2% of people with diabetes, and is often not recognised.
   - Is caused by mutation of a single gene with autosomal dominant inheritance, which limits the ability of the pancreas to produce insulin.
• Is commonly misdiagnosed as type 1 diabetes and treated with insulin.
• Suspect MODY if:
  o diabetes is diagnosed before the age of 25 years.
  o there is a strong family history of diabetes, present in every generation.
• Arrange referral to specialist assessment and genetic testing. See also RACGP – Genomics in General Practice: Diabetes.
  
• Prediabetes.
• Type 1 diabetes.
  • Consider type 1 diabetes if the patient:
    o is not obese.
    o has high BGL > 15 and ketonuria.
    o has rapid onset of symptoms – polyuria and polydipsia.
    o is ketosis-prone.
    o has had recent weight loss or BMI < 25 kg/m².
    o is young – occurs more commonly at younger ages but can develop at any time between infancy and old age.
  • If type 1 diabetes is likely, refer for immediate diabetes assessment.

Management

1. If type 2 diabetes is confirmed, see Managing Type 2 Diabetes pathway.

2. If type 1 diabetes is likely, arrange immediate diabetes assessment. See also Newly Diagnosed Type 1 Diabetes – Adults.

3. If prediabetes:
   • Be aware of increased cardiovascular risk in impaired fasting glucose (IFG) and impaired glucose tolerance (IGT).
   • Assess risk using the Australian Absolute Cardiovascular Risk Calculator.
   • Manage elevated blood pressure and lipids.
   • Advise smoking cessation.

4. Encourage lifestyle modifications to prevent or delay progression to type 2 diabetes:
   • Increase physical activity to ≥ 2.5 hours per week of moderate activity e.g., brisk walking.
   • Encourage weight management.
   • Refer to the Life! diabetes prevention program for telephone health coaching or group courses. Use the Life! referral form.
   • Consider referral to:
     o dietitian
     o exercise physiologist
     o diabetes educator
     o exercise programs
   • Advise metformin has been trialled in this group, but it is not PBS approved for this indication and lifestyle modification remains the priority.
   • Consider performing a health assessment for patients aged 40 to 49 years, or 15 to 54 years for Aboriginal and Torres Strait Islander patients, at risk of developing type 2 diabetes (as assessed by the AUSDRISK score).
Referral

- If type 1 diabetes is likely, arrange immediate diabetes assessment.
- Newly diagnosed type 2 diabetes does not need referral. Consider referral for urgent or routine diabetes assessment if:
  - type 2 diabetes not responding to a combination of dietary and medical management (i.e., has tried at least 3 glucose-lowering medicines) with HbA1c > 64 mmol/mol (8%).
  - patients with type 2 diabetes with complications (e.g., cardiovascular disease, kidney disease, retinopathy, cerebral vascular disease, neuropathy).
  - planning for pregnancy.
  - management of unstable glycaemia due to concomitant use of medicines that impact on glycaemic control (e.g., corticosteroids, chemotherapy protocols).
  - assessment for commercial driver’s licence.
  - diagnosis of type of diabetes.
- If diagnostic uncertainty e.g., suspected MODY or LADA, arrange urgent or routine diabetes assessment for assessment and genetic testing.
- Consider referral for education and to facilitate lifestyle changes to a:
  - dietitian
  - exercise physiologist
  - diabetes educator
  - exercise programs

Information

For health professionals

Further information

The Royal Australian College of General Practitioners (RACGP):
- Diet and Diabetes
- Management of Type 2 Diabetes: A Handbook for General Practice

For patients

- Diabetes Australia – About Diabetes
- Diabetes Victoria:
  - Aboriginal and Torres Strait Islander Resources
  - Information and Resources
- Life! – About the Life! Program
- National Diabetes Services Scheme (NDSS) – Information in Your Language

References

Select bibliography


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Last updated: September 2020