Clinician's Notepad: type 2 diabetes

Screening and diagnosis

- Test HbA_{1c} in people at high risk of type 2 diabetes of any age; the threshold for diagnosis is:
  - HbA_{1c} ≥ 50 mmol/mol
  - HbA_{1c} 41 – 49 mmol/mol classified as "pre-diabetes"

Management

- Select an appropriate glycaemic target based on patient age, co-morbidities, duration of diabetes, history of hypoglycaemia and overall health status:
  - HbA_{1c} < 48 mmol/mol, appropriate for younger people, e.g. aged < 40 years
  - HbA_{1c} < 53 mmol/mol, appropriate for most people
  - HbA_{1c} 54 – 70 mmol/mol, appropriate if hypoglycaemic risk outweighs benefits of lower target
- Follow a stepwise treatment progression:
  - Step 1: Lifestyle interventions + metformin (initiate at diagnosis)
  - Step 2: Add a second non-insulin glucose-lowering medicine, i.e. empagliflozin, dulaglutide, vildagliptin, a sulfonylurea or pioglitazone; a third medicine can be added instead of stepping up to insulin
  - Step 3: Add insulin (isophane insulin appropriate for most patients)
  - If HbA_{1c} > 64 mmol/mol at diagnosis, initiate two glucose-lowering medicines; if HbA_{1c} very high, e.g. 80 – 90 mmol/mol, initiate insulin
- Check adherence to the existing medicine regimen and diet and physical activity approaches before stepping up pharmacological treatment
- Encourage weight loss at any step to induce remission, slow progression, step down treatment intensity or delay treatment escalation
- Encourage consumption of low calorie and low GI foods, increase vegetable intake and minimise dietary fat, sugar and alcohol
- Connect patients to services that can assist with lifestyle changes and provide support
- Consider referral for bariatric surgery if BMI between 35 – 55 kg/m^2* to assist with weight loss
- If patients are transitioning from a paediatric service, establish who is responsible for the patient's diabetes care and ensure they are followed up regularly

* Referral criteria may differ; check with your local DHB

Choosing a Step 2 medicine

- Consider contraindications, co-morbidities, risk of hypoglycaemia, effects on weight, medicines interactions, adverse effects and eligibility for funding
- Empagliflozin or dulaglutide are preferred for people with established CVD or at high risk (including Māori and Pacific peoples), or with heart failure or diabetic kidney disease
- Vildagliptin is preferred for patients who are not eligible for funded empagliflozin or dulaglutide treatment (and are not self-funding treatment)
- Consider other prescribed medicines and how additional diabetes medicines might affect adherence

Initiating insulin

- Initiate once-daily basal insulin, injected at night; isophane insulin is appropriate for most patients
- Determine initial basal insulin dose using body weight:
  - 0.1 units/kg daily if at least one of: HbA_{1c} < 64 mmol/mol, BMI < 18 kg/m^2, older age (e.g. aged > 65 years) or frailty, renal or liver failure
  - 0.2 units/kg daily if HbA_{1c} > 64 mmol/mol and BMI > 18 kg/m^2
- Advise patients to begin self-monitoring blood glucose levels once daily before breakfast; goal is blood glucose levels 6 – 8 mmol/L
- Ensure patients understand how to up-titrate the insulin dose based on fasting blood glucose levels + how to manage hypoglycaemia
- If treatment intensification required, add bolus insulin to a basal regimen OR initiate a biphasic (premixed) insulin:
  - If starting basal-bolus regimen, add a rapid-acting insulin before largest meal (start with 4 units); increase by 2 units if blood glucose level increase with the meal is > 3 mmol/L on three occasions

Annual review

Standard of care for all people with type 2 diabetes; more frequent review may be indicated.

- ✔ Measure weight, waist circumference (optional), blood pressure
- ✔ Examine feet (including skin, nails, deformity), teeth and gums
- ✔ Request HbA_{1c}, urinary ACR, serum creatinine, LFTs, non-fasting lipid studies
- ✔ Review:
  - Retinal photoscreening up to date
  - CVD risk
  - Smoking status, alcohol intake and recreational drug use
  - Mental health
  - Contraception
  - Cervical, breast and bowel cancer screening up to date
  - Any other associated complications, e.g. sexual dysfunction, recurrent skin or genitourinary infection