Type 2 Diabetes – routine OPD management

Key Facts

- Prevalence in Kenya around 3.3%
- Small risk directly from hyperglycaemia (e.g. DKA and HHS)
- Main risk is from associated macrovascular and microvascular disease
- **Lifestyle measures and BP control** are the most important interventions

Complications in diabetes

- Hyperglycaemia
- Hypoglycaemia (due to medication)
- Cardiovascular disease
- Foot disease
- Renal Failure
- Retinopathy
- Peripheral Neuropathy
- Autonomic neuropathy
- Erectile dysfunction
- Infection
- Depression
- Complications of pregnancy

Diagnosis

Have a low threshold for checking for diabetes if symptoms or risk factors

Diagnostic criteria

If symptomatic: One abnormal result –
HbA1c >6.5 OR fasting sugar >7
OR random sugar >11.1
(always try and confirm with a second test)

If asymptomatic: TWO abnormal results at two different times - HbA1c >6.5 OR Fasting sugar >7

Symptoms

- Polydipsia
- Polyuria
- Weight loss
- Recurrent infections
- Wounds that won't heal
- Fatigue
- Blurred vision

Who to screen

- Age >45y
- Obesity: BMI>30, waist circumference >94cm (men); >90cm (Asian men); >80cm (all women)
- Hypertension or cardiovascular disease
- History of gestational diabetes (every 2 years)
- FH of diabetes - parent, sibling (every 2 years)
- If taking drugs that can cause high blood glucose (corticosteroids >1m, ARVs, antipsychotics)
- TB and HIV

Management

1. **Patient self-management education & support** – begin at diagnosis & continue throughout; involve patient and check understanding; **give patient handbook**
   - **lifestyle modification** (diet, alcohol, weight, exercise, smoking); nutritionist
   - information about the disease, management, follow-up
   - foot care
   - sick day rules & danger signs (see box)
2. **Blood sugar control** – see chart below
3. **Cardiovascular risk management**
   - **Manage hypertension** as per hypertension guideline (use ACEI/ARB if possible; target <140/90, or <130/80 if proteinuria)
   - Do not *routinely* start statin, but give to all with known CVD
   - Aspirin *only for secondary prevention* of CVD
4. **Prevention, detection and treatment of complications**
   - Start all patients with evidence of renal failure/nephropathy on an ACEI/ARB (see CKD guideline)
   - Check feet at every visit
   - Discuss contraception with women of reproductive age; need for folic acid 5mg OD if could become pregnant
   - Advise vaccinations – influenza, pneumococcal, Covid

Danger signs

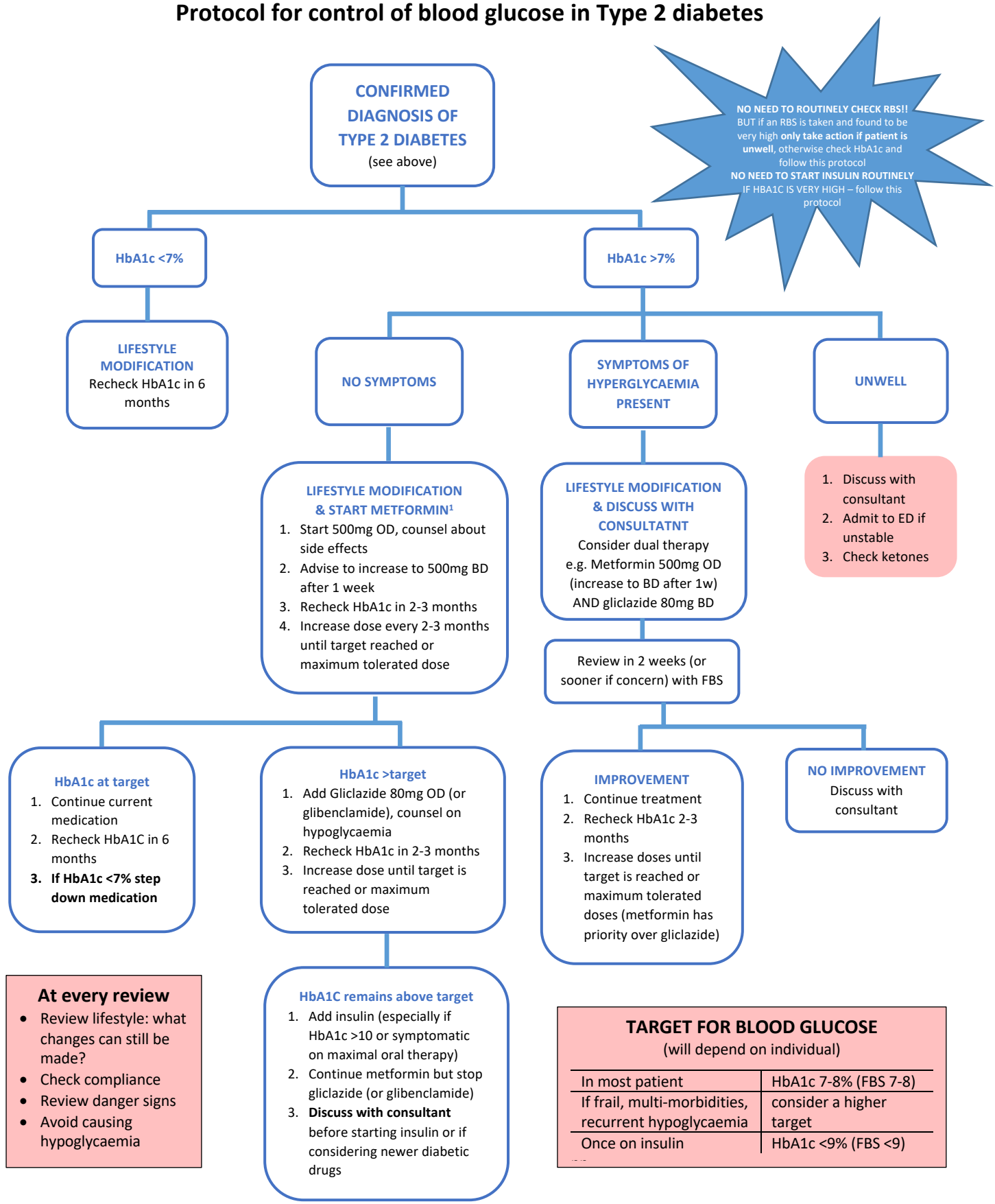
If patient experiences any of the below, they should seek immediate care:

- Drowsiness
- Change in level of consciousness/collapse
- Feeling dizzy or weak
- Rapid breathing
- Weight loss
- Blurred vision
- Concern regarding the patient's health

Investigations

	At diagnosis	Frequency of testing after diagnosis
HbA1c	✓	Every 2-3 months until controlled, then **6 monthly**
FBS	×	Can be used as alternative if HbA1c is not available or if information required before next HbA1c is due
RBS	×	**No benefit** for routine check unless patient is acutely unwell
Urinalysis (dipstick)	✓	**Annually** – looking for significant proteinuria; once diagnosed no need to recheck
Creatinine	✓	**Annually**
Retinal screening	✓	**Annually**
Feet examination	✓	**At each clinical visit**
Dental	✓	**Annually**
TB screening	✓	**At each clinical visit**
Depression screening	✓	**At each clinical visit**
Lipids	×	**No real benefit** in checking levels as will not change decision to treat or not

Protocol for control of blood glucose in Type 2 diabetes



[1] DO NOT use metformin if eGFR<30, caution if eGFR 30-40 (see details in table below)

Prescribing information

Drug	Starting dose	Maximum dose	Additional advice
Metformin	500mg OD, increase to 500mg BD after one week	2.5g daily	• Increase gradually to avoid side effects • Aim to reach 1500-2500mg if tolerated • DO NOT use if eGFR<30; use with caution if eGFR 30-45; discuss with consultant • Caution in conditions that can cause tissue hypoxia; stop if dehydration • Main side effects: nausea, diarrhoea • Can try Metformin XR if significant side effects (but more expensive)
Gliclazide	40-80mg OD	320mg daily	• Doses >160mg daily split to BD • Risk of hypoglycaemia
Glibenclamide	2.5-5mg OD	15mg daily (10mg am, 5mg noon)	• **Only use** if gliclazide not available as higher risk of hypoglycaemia • Care in elderly – start lower dose
Insulin (Glargine)	Commence at 0.1 units/kg/day given once daily at bedtime	Adjust dose by around 10% once or twice a week until the morning FBS <9	• Always discuss with consultant before starting insulin • **Use once daily Glargine (or NPH analogue) at bedtime if available** in preference to Mixtard (similar price in the long run, only once daily injections and lower risk of hypoglycaemia) • **Change to Mixtard BD if HbA1c target not achieved** • Needs significant patient education including training on self-testing, injection technique and hypoglycaemia recognition and management
Insulin (Mixtard)	Commence at 0.2 units/kg/day total dose Give 2/3 dose with breakfast and 1/3 dose with evening meal	Adjust dose by around 10% once or twice a week until the FBS <9 on waking and before evening meal	
Newer diabetic drugs (pioglitazone, gliptins, gliflozins…)	Do not routinely use the newer diabetic drugs. In most cases the above drugs are the most effective options. If specific reasons to consider an alternative medication, **please discuss with a consultant** first		

Consultant review if any of the following:

- Any patient with Type 1 diabetes
- Systemically unwell
- Concerns regarding HHS or DKA
- Renal impairment
- Previous episodes of hypoglycaemia
- Struggling to get glycaemic control
- Concurrent HIV
- Considering newer drugs

Prescribing newer drugs in Type 2 diabetes – for most patients, standard medication (metformin, gliclazide, insulin) is first-line

Antiglycaemic medication	Cost	Glycaemic control	Prescribing information	Benefits	Cautions
Gliptins e.g. Vildagliptin	Cheap	Poor	**Vildagliptin:** 50mg twice daily 50mg once daily if used in combination with gliclazide/glibenclamide	*Could be useful if metformin contraindicated or not tolerated* Low hypo risk Weight neutral	- Possible ↑heart failure - Pancreatitis - eGFR<50 - Max dose 50mg once daily
Pioglitazone	Cheap	Moderate	Initially 15-30mg once daily, increase to 45mg maximum according to response In elderly, start lower dose and increase slowly	*Could be useful if metformin contraindicated or not tolerated* Low risk hypo Safe in renal impairment Moderately effective	- Contraindicated in heart failure - Weight gain - ↑risk of bladder cancer, fractures - Caution elderly
SGLT2i e.g. Empagliflozin Dapagliflozin	Expensive	Moderate	Start metformin first (unless contraindicated) **Empagliflozin:** 10mg once daily, increased to 25mg if necessary and if tolerated **Dapagliflozin:** 10mg once daily	*CV and renal benefits so could be offered (with metformin) in T2DM if CVD, high CVD risk or CKD* ***BUT BE AWARE OF COST*** Low hypo risk **CV and renal benefits** Weight loss	- Genital infections (as peeing out sugar) - DKA with relatively low blood glucose - If eGFR 20-60, max dose 10mg daily - Avoid initiating if eGFR<20 - Avoid in severe liver impairment - Caution in elderly and if low fluid intake

References:

Noncommunicable Diseases (NCD) Country Profiles, WHO, 2014.
National clinical guidelines on management of diabetes mellitus, 3rd edition, MOH Kenya, 2024;
www.nice.org.uk/guidance/ng28;
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