

## 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	Symptoms	Who to screen
<p><b>If symptomatic:</b> One abnormal result – HbA1c &gt;6.5 OR fasting sugar &gt;7 OR random sugar &gt;11.1 (always try and confirm with a second test)</p> <p><b>If asymptomatic:</b> <u>TWO</u> abnormal results at two different times - HbA1c &gt;6.5 OR Fasting sugar &gt;7</p>	<ul style="list-style-type: none"> <li>• Polydipsia</li> <li>• Polyuria</li> <li>• Weight loss</li> <li>• Recurrent infections</li> <li>• Wounds that won't heal</li> <li>• Fatigue</li> <li>• Blurred vision</li> </ul>	<ul style="list-style-type: none"> <li>• Age &gt;45y</li> <li>• Obesity: BMI&gt;30, waist circumference &gt;94cm (men); &gt;90cm (Asian men); &gt;80cm (all women)</li> <li>• Hypertension or cardiovascular disease</li> <li>• History of gestational diabetes (every 2 years)</li> <li>• FH of diabetes - parent, sibling (every 2 years)</li> <li>• If taking drugs that can cause high blood glucose (corticosteroids &gt;1m, ARVs, antipsychotics)</li> <li>• TB and HIV</li> </ul>

### Management

1. **Patient education** – begin at diagnosis then continue throughout; involve patient and check understanding; **give patient handbook**
  - **lifestyle modification** (diet, weight, exercise, smoking); nutritionist
  - information about the disease and management
  - 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

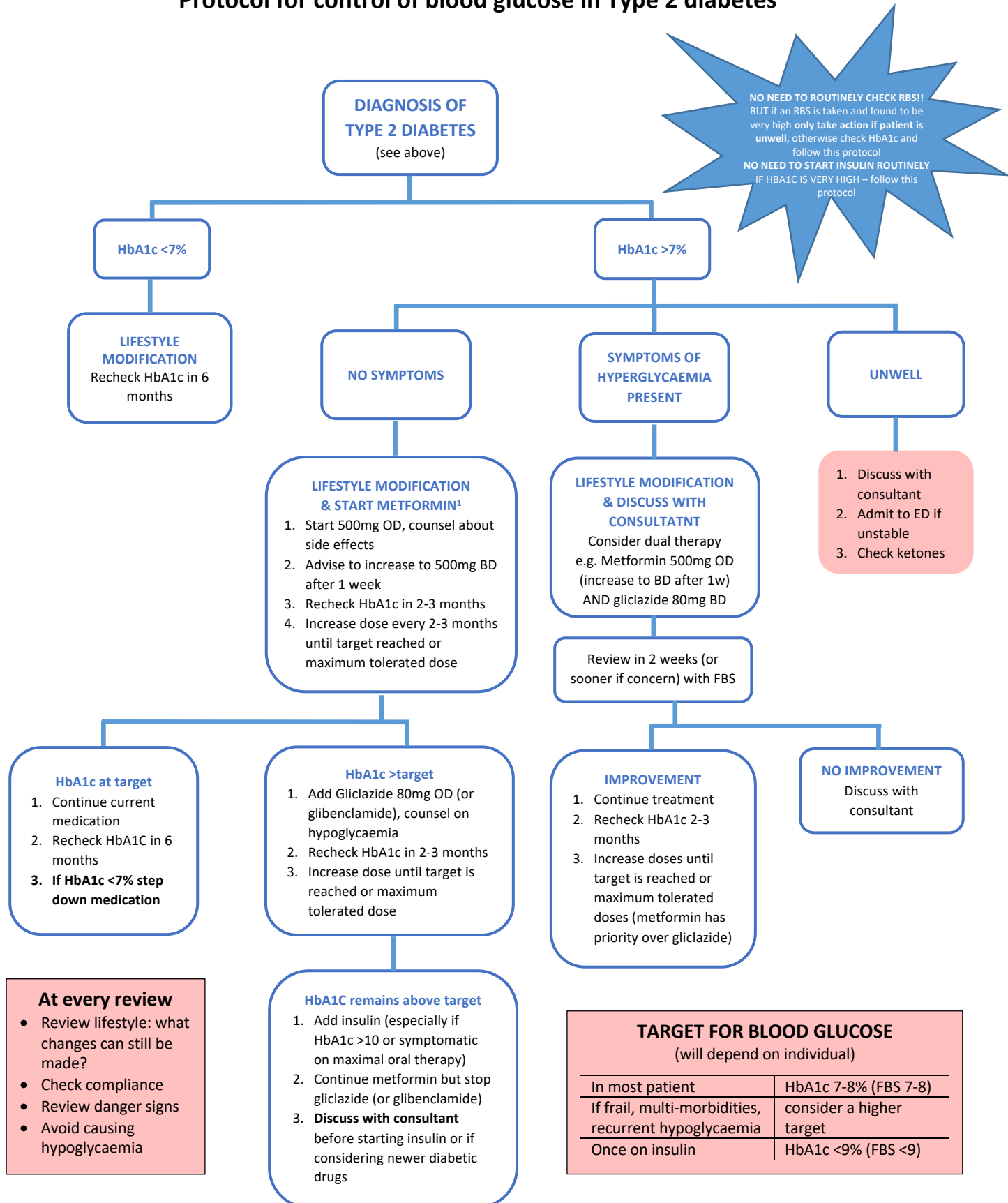
If patient experiences any of the below, they should seek immediate care:

- 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 <b>6 monthly</b>
FBS	×	Can be used as alternative if HbA1c is not available or if information required before next HbA1c is due
RBS	×	<b>No benefit</b> for routine check unless patient is acutely unwell
Urinalysis (dipstick)	✓	<b>Annually</b> – looking for significant proteinuria; once diagnosed no need to recheck
Creatinine	✓	<b>Annually</b>
Retinal screening	✓	<b>Annually</b>
Feet examination	✓	<b>At each clinical visit</b>
Dental	✓	<b>Annually</b>
TB screening	✓	<b>At each clinical visit</b>
Depression screening	✓	<b>At each clinical visit</b>
Lipids	×	<b>No real benefit</b> in checking levels as will not change decision to treat or not

## Protocol for control of blood glucose in Type 2 diabetes



<sup>1</sup> 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	<ul style="list-style-type: none"> <li>• Increase gradually to avoid side effects</li> <li>• Aim to reach 1500-2500mg if tolerated</li> <li>• DO NOT use if eGFR&lt;30; use with caution if eGFR 30-45; discuss with consultant</li> <li>• Caution in conditions that can cause tissue hypoxia; stop if dehydration</li> <li>• Main side effects: nausea, diarrhoea</li> <li>• Can try Metformin XR if significant side effects (but more expensive)</li> </ul>
Gliclazide	40-80mg OD	320mg daily	<ul style="list-style-type: none"> <li>• Doses &gt;160mg daily split to BD</li> <li>• Risk of hypoglycaemia</li> </ul>
Glibenclamide	2.5-5mg OD	15mg daily (10mg am, 5mg noon)	<ul style="list-style-type: none"> <li>• <b>Only use</b> if gliclazide not available as higher risk of hypoglycaemia</li> <li>• Care in elderly – start lower dose</li> </ul>
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	<ul style="list-style-type: none"> <li>• Always discuss with consultant before starting insulin</li> <li>• <b>Use once daily Glargine if available</b> in preference to Mixtard (similar price in the long run, only once daily injections and lower risk of hypoglycaemia)</li> </ul>
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	<ul style="list-style-type: none"> <li>• Needs significant patient education including training on self-testing, injection technique and hypoglycaemia recognition and management</li> </ul>
Newer diabetic drugs (pioglitazone, gliptins, gliflozins...)	<p><b>Do not routinely use the newer diabetic drugs. In most cases the above drugs are the most effective options.</b></p> <p>If specific reasons to consider an alternative medication, <b>please discuss with a consultant</b> first</p>		

### 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	<b>Vildagliptin:</b> 50mg twice daily  50mg once daily if used in combination with gliclazide/glibenclamide	<i>Could be useful if metformin contraindicated or not tolerated</i>  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	<i>Could be useful if metformin contraindicated or not tolerated</i>  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) <b>Empagliflozin:</b> 10mg once daily, increased to 25mg if necessary and if tolerated  <b>Dapagliflozin:</b> 10mg once daily	<i>CV and renal benefits so could be offered (with metformin) in T2DM if CVD, high CVD risk or CKD BUT BE AWARE OF COST</i>  Low hypo risk <b>CV and renal benefits</b> 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.

[http://guidelines.health.go.ke:8000/media/Kenya\\_National\\_Diabetes\\_Strategy.pdf](http://guidelines.health.go.ke:8000/media/Kenya_National_Diabetes_Strategy.pdf)

<https://www.nice.org.uk/guidance/ng28/resources/type-2-diabetes-in-adults-management-pdf-1837338615493>

2019 Clinical Guide Primary Care International (adapted for this context and location. PCI have not been involved in, nor hold responsibility for any adaptations. Original can be found at: <https://ncd-training.org/open-source-clinical-guide/>)

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